This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

LANE

MEDICAL LIBRARY

SEAL OF THE LELAND STANFORD JUNIOR UNIVERSITY
SEMPER VIRENS
1885

LEVI COOPER LANE FUND

THE MOTHERCRAFT MANUAL

THE MOTHERCRAFT MANUAL

Training in Mothercraft, at the School of Mothercraft, New York City. FRONTISPIECE.

THE MOTHERCRAFT MANUAL

BY

MARY L. READ, B.S.

DIRECTOR OF THE SCHOOL OF MOTHERCRAFT, NEW YORK

ILLUSTRATED

BOSTON
LITTLE, BROWN, AND COMPANY
1916

THE MOTHERCRAFT MANUAL

BY

MARY L. READ, B.S.

DIRECTOR, THE SCHOOL OF MOTHERCRAFT, NEW YORK

ILLUSTRATED

BOSTON
LITTLE, BROWN, AND COMPANY
1918

Ka

Copyright, 1916,
By Little, Brown, and Company.

All rights reserved

PG1
R28
1918

INSCRIBED TO
MY MOTHER AND FATHER

46414

INTRODUCTION

"SEVENTY-FIVE per cent. of the women of America are married, and most of these have children." It is not conceivable that women entering into any other vocation of life would think of undertaking it without deliberate preparation. Motherhood is so precious and wonderful that we fear to think of it in terms of definite preparedness. We like to think that it comes natural to be good mothers and that to study in preparation for it or to analyze it might produce more harm than good.

Let me use my own case as an illustration of how ill-prepared even earnest women are for motherhood. I was married twenty-nine years ago. I wanted children with all my heart. My first baby came sixteen months after I was married. I bought all the literature I could find on my new occupation, kindergarten books beginning with Froebel and ending with Susan Blow and her contemporaries; I studied Spencer's Education, William James' chapters on habit and attention, and read biographies of great people. My first ambition was to be a good mother, and I was eager to learn all I could about it. My college studies for five years were Greek, Latin, and higher mathematics, with an occasional semester of botany, evidences of Christianity, physics, etc. I do not remember hearing a reference to motherhood during my college experience.

I have had six children, four of whom are living. Had I had the knowledge I now have, or know how to get, it seems that the little seven-months-old boy could have been saved. I was called a scientific mother, my babies were fed regularly, put to bed regularly, and were dressed as sensibly as babies are now, but at that time we did not have the knowledge about the physical care of babies which we now have. What I object to is the amount of time I had to give when my children were little to learn things which I ought to have known before motherhood came to me, so that I could have been free to give myself to them. I knew "education through play" only as a figure of speech. Last summer I took a year-old baby to camp. I had the care of her three consecutive months, and was responsible for her six months. I yielded to the impulse to play with her, and in gratifying this instinct I used all the store of knowledge which experience had brought to me. It was evident that she was learning things every day, and that progress was astonishingly rapid. Most of the things I taught her were taught by the use of signs and objects. I asked her if she wanted to come to me by holding out my hands to her. She understood, and soon asked me to take her by holding out her hands to me. I asked her where her eyes were, her mouth, nose, ears, by touching each in turn. She understood and touched each in turn. It was interesting to note when it was no longer necessary to use the sign, when she understood spoken language without the aid of gesture.

The phrase that "education begins at the cradle" took on a new significance. I felt that I was a teacher as well as a mother and the importance of my part in the education of this baby opened up amazingly. It was play, but it was also education. Those minutes with her when no one was near, when we were all in all to each other, were precious beyond words.

Through this love-relation there was intense joy in both learning and teaching. The reason the mother's part in education is incomparable to any other is because of this love-relation.

We are told that during the first five years of life more is learned than during all the rest of life. The teachers during these years are primarily the mothers. The mother-teacher relation goes on after school days begin, but gradually is regarded less important, and the teacher's part grows. Mother is forgotten as a teacher. She loses confidence in herself and forgets that no one can take her place.

It does not seem to me that any woman could have more earnestly desired and striven to be a good mother. I studied and worked as hard as I could, but it was not possible for me to secure the training that girls can get to-day. It now seems to me that it is about as rational for a woman to learn by experience with her own children to be a good mother, as it would be for a doctor to get his education merely by practising on his patients. Motherhood offers no less opportunities for success than do the professions of law or medicine. The preparation for it is just as definite and is more important. It has remained for Mary L. Read, with splendid devotion and university training, to put these matters together and to organize and conduct a " School for Mothercraft."

The time is coming when women will no more go into physical and spiritual motherhood unprepared, trusting to " mother instinct ", than they will go into law or medicine, trusting to their sense of right and of sympathy with the sick to guide them.

CHARLOTTE V. GULICK.

PREFACE

CERTAIN definite ideals have been constantly in mind in the preparation of the present volume, among these the following:

To write a handbook that is so definite, concrete, and clear that the least experienced person of average intelligence will find it practical.

To bring directly to those who have opportunity to use it, — the home-makers, present and prospective, — some of the wealth of present knowledge in biology, dietetics, hygiene, domestic efficiency, child psychology, education, that is stored in the laboratories, research reports, medical records, technical journals, and educational classics, translating these from the obscure tongue of technical language into the clearer speech of daily life.

To furnish a guide to more technical or detailed consideration of each subject.

To present fundamental principles and facts rather than mere rule of thumb procedure, so that the reader may act intelligently and make intelligent variations.

Not to compromise on half-way procedure that merely prevents disaster, but to make clear the means to greatest personal efficiency and social power.

To keep a progressive yet reserved attitude between conservative and radical theories.

To bring the spirit of sympathy and humanness, of love and child-nature and poetry into the teaching of home-making.

To lighten the burden and enlighten the minds and hearts of earnest young people so that with joy and satisfaction they may essay and find the home and family life that their hearts desire.

Froebel outlined, nearly a century ago, a thorough, practical training course for young women, preparatory to home-making or to vocational work as teachers or mothers' assistants. At Pestalozzi-Froebel House in Berlin, half a century ago, under the administration of Frau Shrader and Miss Annette Schepel, such a course was organized. Echoes of it to-day are found in the German secondary schools and special schools for girls. The same idea spread to England a quarter of a century ago, and there to-day a score of special schools, and some girls' high schools, provide such a training.

In America, the School of Mothercraft was opened in New York City in December, 1911, to work out experimentally a training course for educated young women.[1] Here has been developed a comprehensive, human, practical course including domestic science and art, and the care and training of babies and little children. The students work in a home atmosphere, under home conditions, using the household for their practice work, caring for the resident babies and children, educating and training them in the course of the day's régime, and receiving their own training in personality and technique as well as in theory. Extension classes have been maintained for young mothers, brides, and engaged young women.

---

[1] The word "mothercraft" was coined by the author to express the comprehensive scope of the training. The word has since come into use in England in a narrower sense, including merely infant care. It is hoped that in America the use of the word may be retained in its larger significance.

It is work with young women and the children in the School of Mothercraft that has made possible the preparation of the present volume.

No book can take the place of the living teacher. No amount of discussion of theory can be a substitute for experience. Yet experience, without sound principles, is also of minor value. Any book presupposes a modicum of common sense and rational judgment in its readers.

In a volume of such limited compass only a few significant principles can be presented, and some of the important elementary facts and technique that more technical books may overlook. The present volume aims only to be an introduction to the many phases of home-making, child care, and child training, to furnish something of vision for these responsibilities, and a guide for further study.

No book can be a substitute for the personal advice of the physician, the hygienist, the psychologist, and the teacher. The reader of any book on applied science may easily make the mistake of interpreting statements out of proportion to their significance, or of misunderstanding directions so that they even become misleading. Only discussion with the living teacher will discover and correct such errors.

The reader must be open-minded to new discoveries, new theories, new methods. At the present time, as never before, extensive researches are being made in biology, hygiene, dietetics, child psychology, and pedagogy. Important discoveries as revolutionary as the discovery of the circulation of the blood, radio-activity, the cellular basis of life, may be made at any future time.

In the present volume no attempt has been made to present controversial points of view, but a consistently constructive régime and programme has been given. The novice in any art must first learn to work constructively and rather dogmatically, until he has learned to apply one set of principles efficiently. Then he may begin to modify details according to some rational principle, instead of by mere whim, and to compare his method with other possibilities. The basis and the special authorities for the régime here presented will be found in the final chapter on bibliography.

JULY, 1916. MARY L. READ.

ACKNOWLEDGMENT

The author begs to acknowledge indebtedness and gratitude to many who have participated in the making of the book.

To the Messrs. Macmillan Co., Ginn Company, F. A. Stokes Co., and D. Appleton & Co., for permission to quote from their publications; to the American Medical Association Press and Dr. Roland G. Freeman for use of the graphs on growth; to Mr. William S. Bailey and The Nurse Studio for many of the photographs taken specially for this work.

Especially the author begs to tender sincere thanks for many criticisms, suggestions, and reviewing of manuscript to Dr. David Starr Jordan, Dr. William F. Snow, Professors Rudolph M. Binder, Willystine Goodsell, Robert M. Yerkes, and Mr. Paul Popenoe, on the sections dealing with the home and the family; to Dr. Josephine H. Kenyon for sections on maternity and infancy, Drs. Henry I. Bowditch, William Shannon, and William H. Burnham, for sections on hygiene and growth; to physicians and nurses at Battle Creek Sanitarium for assistance in the sections on nursing and nutrition; to Dr. William H. Park for revising data on communicable diseases, and to Professors Henry C. Sherman and Mary S. Rose for suggestions and for unpublished data on nutrition. Mrs. Anna Martin

Crocker and Miss Sunnyve Carlsen have kindly given literary assistance. Helpful suggestions on the reading list have been furnished by science teachers of Horace Mann, Ethical Culture, Francis Parker, and the University of Chicago Elementary Schools. Miss Helen O. Rider and Miss Mary Scott Allen have rendered invaluable aid in criticism and clerical details. To the many others who have furnished technical data or read portions of the manuscript, the author here expresses thanks. Finally, the author would gratefully acknowledge the unfailing patience and kindly encouragement of the publishers. For such errors as may be found the author alone is responsible. Criticisms or suggestions from readers, which may improve the helpfulness or accuracy of the Manual, will be gratefully received.

MARY L. READ.

JULY, 1916.

CONTENTS

PAGE
INTRODUCTION vii
PREFACE xi
CHAPTER
I MOTHERCRAFT: ITS MEANING, SCOPE, AND SPIRIT 1
II ESTABLISHING THE HOME 10
III FINDING THE MEANS FOR MOTHERCRAFT . . 20
IV FOUNDING A FAMILY 29
V GROWTH AND DEVELOPMENT 41
VI PREPARING FOR THE BABY 62
VII CARE OF THE BABY 85
VIII THE PHYSICAL CARE OF YOUNG CHILDREN . 119
IX THE FEEDING OF CHILDREN 155
X THE EDUCATION OF THE LITTLE CHILD . . 196
XI STUDYING THE INDIVIDUAL CHILD . . . 223
XII A CURRICULUM FOR BABYHOOD AND EARLY CHILDHOOD 246
XIII PLAY 264
XIV GAMES 275
XV THE TOY AGE 285

CHAPTER PAGE
XVI STORY-TELLING 299
XVII SCIENCE AND HISTORY 309
XVIII HANDWORK 317
XIX MUSIC AND ART 329
XX HOME NURSING AND FIRST AID IN THE NURSERY 337
APPENDIX 365
BIBLIOGRAPHY 381
INDEX 425

LIST OF PLATES

Training in Mothercraft, at the School of Mothercraft, New York City . . . . . . *Frontispiece*

FACING PAGE

Approved Baby Clothing and Bassinet 62

Approved Crib, Scales, Nursery Table. Holding the Baby, Supporting Head and Back 74

Approved Baby Carriage and Shoes 76

Drugs and Unsanitary Appliances. Unhygienic Equipment and Unsatisfactory Scales 80

For the Layette 82

Exercises for the Baby 114

Good and Bad Postures 142

Exercises for Trunk, Chest and Back 144

Some Especially Dangerous Foods for Children under Six. Poisons for Little Children 164

Wholesome Sweets at Suitable Ages. Laxative Foods . 174

Day's Menu for Child Two to Four Years. Day's Menu for Child Four to Six Years 182

Learning Self-reliance and Regularity. At the School of Mothercraft Summer Camp 212

Unhygienic, Inartistic, Anti-social Toys. Hygienic, Durable, Constructive, Social Toys 290

Handwork that Utilizes Fundamental Muscles. In the School of Mothercraft Child Garden 320

Height and Weight Charts 370

THE MOTHERCRAFT MANUAL

CHAPTER I

MOTHERCRAFT: ITS MEANING, SCOPE, AND SPIRIT

> "To know a child is to love it, and the more we know it, the better we love it.
>
> "To know, love, and serve childhood is the most satisfying, soul-filling of all human activities.
>
> "It rests on the oldest and strongest and sanest of all instincts.
>
> "It gives to our lives a rounded-out completeness as does no other service.
>
> "No other object is so worthy of service and sacrifice; and the fullness of the measure in which this is rendered is the very best test of a nation and race and a civilization."
>
> — G. STANLEY HALL.

MOTHERCRAFT is the skilful, practical doing of all that is involved in the nourishing and training of children, in a sympathetic, happy, religious spirit. It is not merely the care of the little baby; that is a very small, though significant, part. Its practice is not dependent upon physical parenthood, but is part of the responsibility of every woman who has to do with children as teacher, nurse, friend, or household associate. It is no more an instinct than is gardening or building. It is not merely being with children. Its requisite is vital working knowledge of the fundamental principles of biology, hygiene, economics, psychology, education, arts. It is mothering — that oldest, steadiest, most satisfactory vocation to women always and everywhere — made intelligent and efficient and joyous.

Mothercraft cannot be learned simply from books any more than can music, agriculture, carpentry, dentistry. The most important factor in the learning of mothercraft is the daily intelligent association with the children in their natural environment of home. A hospital with sick children is a place to learn its pathological phases.

No one of intelligence will dispute the *theory* that the most important period in the child's life is the first seven years. It is in these years that the foundation of his physical life is settled (or unsettled); that the lifelong habits are formed; that the prejudices and the bases of his spiritual and social life are laid. The "gates of gifts" — his potentialities — are closed at birth, possibly when his parents are chosen. Whether one is an advocate of heredity or of environment as the most influential factor in the life of the individual, none will now gainsay that both the heredity and the environment of every individual can be controlled, and that each of these factors may be made vastly more efficient through the high ideals, the intelligence, and the foresight of parents present and potential.

In these days of radical change in the activities and education of women, mothercraft has not kept pace with the other vocations open to women. In a society where marriage is no longer an economic, domestic, or conventional necessity, there has developed a tacit assumption that youth would not marry, and therefore special preparation for home-making (and especially for child care) would be presumptuous and a waste of time. The school has left this part of a girl's training for the home to give, and in a large proportion of homes there has not been the time or the intelligence or the foresight to give it. Girls have gone from elementary school directly into industry, or to high school and college, or to finishing school and society. Educators and vocational guides have frequently overlooked it in educational and vocational conferences, exhibits, and guidebooks.

And yet to-day in America, the care and training of young children is chiefly in the hands of women. Seventy-five per cent. of women in America are married, and presumably most of them have the responsibility of children in their own homes.

There are *ten million* children under six years of age whose care and training is naturally in the entire control of their homes. There are *fourteen million* children between five and fifteen years of age who, on the average, spend thirty hours a week, for forty weeks a year, in school, while all the rest of their life — about seventy per cent. of their waking hours, as well as all their sleeping hours — is in the control of their mothers and fathers.

Nursing, within fifty years, has become a profession, and to-day it is almost impossible for a woman to find employment as a nurse unless she has had a special training for three years. Yet nursing has only to do with sick folk, usually in a hospital, which is still a far cry from the daily care, hygiene, and training of the normal child in a home. For an equal period, teachers of young children have been expected to take a special normal course of two to four years. Yet this training has had little to do, until recently in some quarters, with hygiene, biology, or the psychology of the child, but has concerned itself chiefly with subjects in the curriculum and with masses of children in an artificial grouping and environment, foreign to their native interests and inimical to their physical needs.

Only within the last twenty-five years has medicine developed pediatrics — the special study of children's treatment. Child-hygiene is still later as an exact science. Child-study, as an exact science, dates back to Froebel and the early nineteenth century, and is still a new field.

The mother in her home, herself with slight special preparation, busy with her children, could scarcely have been expected to keep pace with these developments and to teach them to her daughters, even had she the foresight. The higher institutions of learning, naturally among the most conservative forces of society, have not yet begun to perceive the significance of such a subject as mothercraft in the curriculum, although the beginnings of some phases are being made. The secondary and elementary schools, bound by the fetish of college requirements, are only beginning to show here and there indications of efforts to prepare for living instead of simply for college.

And the young woman — still immature, inexperienced, and therefore not appreciative of life's values and impending responsibilities — has had neither the guidance of school and home, nor the educational opportunity, nor the personal foresight to prepare adequately for this vocation.

What is the consequence? A generation of women, the majority of whom are notoriously (and sometimes shamelessly) ignorant and unskilled in the most vital and significant human responsibilities. In millions of homes women are wasting their time and energy, losing the joy of their motherhood (and too often their little ones), perplexed, harassed, overburdened, because they are bungling, stumbling blindly, groping at their vocation. And those they love most dearly are paying the penalty, in less happy homes, less efficient lives. Hundreds of thousands of self-supporting young women every year are going into industrial or commercial work or school teaching, not because they prefer it, but because opportunities for acquiring the requisite skill are at hand, and conditions of work have been standardized. Hundreds of thousands of mothers with young children are seeking in vain for assistants of desirable personality and efficient training. For such workers there has been no adequate opportunity for training and no standardizing of working conditions. In all this, America is far behind both Germany and England.

What does mothercraft require in its practitioners? First, *personality:* love of children and sympathy with child-nature, responsibility, patience, thoroughness in the minute details day in and day out, self-control, good judgment, adaptability, the play spirit. Fundamental also are open-mindedness, spiritual vision, and the poise that results from a well-regulated physical régime and a firm apprehension of eternal verities.

Then *knowledge:* a sound foundation in the fundamental principles and vital facts of applied biology, psychology, sociology, ethics, economics, natural sciences, play, arts, as they relate to the home, the family, and childhood. Equally important is the scientific mind that knows how to approach new problems and receive new principles.

Then *technique:* the actual doing and practice of mothercraft. Knowledge is of no value until it is translated into efficient action. There must be little children to care for, tend, play with, educate.

What of fathercraft? Every child has two parents, equal in responsibility for his heredity and likewise for his rearing. Fathers could hardly be expected ordinarily to be versed in the intricacies of clothing, feeding, and bathing the baby. But why should not every man understand the principles of hygiene and foods as a matter of his general knowledge quite as much as for coöperation with the mother in the children's régime? Why should he not with equal zest make a study of growth and development during childhood?

Even more, why should he not be intimately acquainted with child psychology and the fundamental principles of child training and education, that he may understand his own children and coöperate sympathetically in their upbringing? Is there any valid reason why he should not be equally acquainted with the sociology of the home, the meaning and principles of eugenics, the psychology of harmony in home life?

There is no profession open to either men or women that offers such opportunities for personal culture, individual expression, technical skill, scientific research, social contribution and welfare, as mothercraft. Perhaps the very comprehensiveness of it and its humanness have presented a problem so complex that it has baffled the educators and delayed its admission to academic dignity.

Through the channels of child welfare, eugenics, and pediatrics, a keener sense of responsibility toward the child unborn is developing. Through the increasing knowledge of heredity, child psychology, and education, a clearer vision is appearing to young men and young women of what they themselves might have been, and of what they may yet create and develop by combining wisdom with their great love. Philanthropists are realizing the futility of simply relieving immediate suffering, crime, inefficiency, for generation after generation. They are looking to the elimination of the causes: ignorance of the rudiments of living, poor heredity, neglect in childhood, unsanitary, ugly, unspiritual living conditions. "There is no wealth but life," we are realizing with Ruskin. Statesmen and legislators are beginning to see that the stability of society and the State demand that the organizing of homes, the founding of families, the spending of family incomes, shall not be intrusted to novices and unskilled workers. As indications of this, we have the recently established Children's Bureau, and the Smith-Lever

Bill with its appropriation for education that includes home-making.

In America, clubs, reading courses, and special correspondence for parents have been developed in the last quarter century by the International Congress of Mothers, Parent-Teachers' Association, Home and School League, American Institute of Child Life. This is good and is helping many parents in meeting their perplexities, but as a national means of vocational training, its psychology and pedagogy is shortsighted and inefficient.

What banker would trust his ledgers to a youth just out of school, whose only special preparation for bookkeeping was a current reading course in business methods? What woman would permit a man to experiment on her garden if he was just beginning a correspondence course in agriculture? What business man wants to intrust his correspondence to a stenographer just out of a business course, even after months of such vocational training? All this is recognized as inefficient, wasteful, expensive in business; how much more so is it in the home, where precious human lives are the factors to be dealt with.

Slowly, but certainly, there is coming a new ideal in education. Children and young people are to be prepared for living. They are to know how to develop physical vitality and mental ability and spiritual power. They are to be prepared in spirit and intelligence, in skill and in science, in personality and technique for the responsibilities that most of them will assume, for the greatest responsibility any of them can assume — home-making and family rearing.

Both the school and the home are responsible for the preparation of these future parents. They must apply to this vocational problem all their knowledge of psychology and pedagogy. Right habits of regularity, responsibility, self-control, must be carefully trained in those babyhood and early childhood stages; the manual phases of household work are to be taught in the manual stage before the teens; boys and girls are to be imbued with a wholesome, responsible spirit toward motherhood and fatherhood and the home which they are taught to look forward to as the goal for themselves; girls in their teens are to have companionship and experience with little children, learning the essential details and the significant guiding principles of their high calling in a practical, human, motherly way, under wise and sympathetic teachers. Girls, and boys likewise, will be encouraged to foresee the significance and values and responsibility of home and family, and to conduct themselves worthily of such a mission.

Secondary and elementary schools are beginning to give school credit for assistance at home. Domestic science and art are now taught in hundreds of schools. Their field as yet is narrowly restricted to the mechanics of the household, usually taught in an academic way. This, however, is an entering wedge for more practical, comprehensive, and human phases of home-making education whenever school administrators, teachers, and parents shall see that vision. The day seems not distant when colleges generally will give credit for all home-making branches, as a few do now for some phases. We may even yet see universities granting M.A. and Ph.D. degrees in mothercraft and fathercraft, as well as in philology, astronomy, history, or other more consequential branches of learning. College alumnæ themselves are making earnest appeals to their Alma Maters to prepare their students for home-making responsibilities. It is not unthinkable that the colleges, before many decades, might even include the preparatory work in these subjects among their entrance requirements, as they now do algebra and Latin. In that day "applied science" will be esteemed more worthy than "pure science", and ability to utilize more honorable than ability to memorize. By the next century, a mothercraft course may become as conventional a part of the curriculum of a finishing school as French or vocal training or æsthetic dancing; and its rudiments as requisite as a certificate of age for working papers; and preparedness in fathercraft as stringent a requirement for a marriage license as a medical certificate. Why not?

CHAPTER II

ESTABLISHING THE HOME

The Purpose of the Home. The cause, historically, and the reason, socially, for the home is the child and the family. Home is the great training school of life for parents as well as for children. It is not merely a place to eat and sleep; any boarding-house can provide that. The ideal home is a community of congenial spirits, a place of inspiration, comfort, rest of spirit as well as of body. Here dwell together two who have chosen each other as comrades in the complex problem of living, to share their fare, their mirth, their troubles, to give cheer in distress, encouragement in struggle, ambition for achievement, sympathy in trial and happiness, friendly criticism to refine; and to coöperate in their mutual desire, responsibility, joys, and trials of rearing a family.

As young men and women face squarely the possibilities in a home, as they perceive the causes of discord in family life, and study the basis of family stability and happiness, as they take the time before marriage to compare sincerely their ideals, tastes, standards, expectations, they will minimize the possibilities of later discord — even tragedy. If they cannot agree sincerely and heartily on economic, social, physiological, and psychological adjustments before the wedding ceremony, when each has the altruism of romance and the spur of the game, how can they expect to adjust themselves amicably afterwards, in the severe test of everyday needs and situations?

Marriage is the concern of the individual, because his happiness and his activity are involved. It is also the concern of the State, because property rights, social harmony, and future citizenship are involved. A brief study of the historical and social development of the home and family relations will give a surer basis for the rational discussion of this problem than would a theoretical discussion based merely on prejudices of individualism or altruism.

Evolution of Marriage. In the human species, infancy is prolonged over several years. From this mutual care by the mother and the father in primitive society, there evolved the mutual love for the little child and later for each other; and with this the permanent relationship which alone could produce the organization of the family. The beginnings of morality likewise developed from this sense of a community interest which called for a subordination of selfish desires.

For ages mankind has experimented with different forms of family relation and home organization, trying to discover which serve best to foster the child, conserve the State, and satisfy the men and women who form the family. Under different social and economic conditions, polygamy and polyandry (more than one wife or husband), promiscuity (several temporal husbands or wives) and monogamy (one husband or wife) have been tried.

Polygamy, in primitive society, developed where women were in excess, or their labor increased family income, or where a man's fortune enabled him to support more than one wife and her children. The polygamous nature of man was accepted by Egyptian, Greek, Roman, and Mohammedan religions, and its practice permitted by their statutes. The Jewish nation early evolved from polygamy to monogamy, and incorporated the latter into its religion and customs. Anglo-Saxon ideals were of monogamy. The teachings of Christ emphasized monogamy. The early Christian teachers even carried this, as other ideals, to its farthest extreme, and preached the ideal of celibacy which they mistook for the chastity that is wholly consistent with ethical marriage. It remained for Mormonism to sanctify polygamy and make it a religious duty. In the early days of that sect, polygamy was theoretically disapproved, but actually practiced by their leaders. Later it was openly approved and permitted, and finally made a religious duty. It is still considered a cardinal religious obligation and widely practiced by the sect, although openly denied. As polygamy is not permitted by the laws of this country, such plural marriages have no legal standing, and therefore the children of the plural wife are illegitimate, and the wife herself has no legal status as such. Mormon women are taught that polygamy is God's command; that the husband's future glory is increased according to the number of his wives and children, and that only by consenting to his plural marriage can the first wife expect to share eternal companionship with him. The aggressive missionary efforts of Mormonism in all parts of the country make this an insidious moral danger.

In primitive, as well as in civilized societies, the beginning of a new home is customarily celebrated with civil and religious ceremonies; customs and laws provide for the relative rights of the husband and wife to their persons, their children, their property, and the returns from their labor. Infidelity (particularly of the wife), common-law marriages (living as husband and wife without legal marriage), promiscuous relations, divorce, have generally been branded as anti-social and reprehensible, expressions of lack of self-control, altruism, and foresight.

Mankind is finding through the experience of the ages that monogamy best conserves child life, the home, the State, and individual happiness. It has found that irresponsible parenthood, shallowness of marital or parental affection, promiscuous relations, all endanger the life and welfare of the child. It has learned that marriage customs and laws requiring considerable formality and therefore deliberation of the contracting parties, reduced the proportion of hasty, unsatisfactory, and temporary unions with their uncertain responsibility for the children, and their quarrels over property. Many factors have contributed to the establishment of the really monogamous family and home as the social ideal and the increasing social practice. The lengthening period of infancy, with the consequent longer period of mutual coöperation of parents in nurture and training; realization of the Christ spirit of love for others, of respect for the value and individuality of every human life; the consequent refinement of the emotional life and social feeling, and the sublimating of sex instincts to the development of a richer personality, to mental creative work and to social service; the democratization of education and social status; freedom in choice of a marriage partner — all have contributed a part.

Freedom of choice has been far less prevalent than capture, purchase, or family contract, in marriages of the past. It is wearisome to even try to imagine the procession of brides, since those early days of the cavemen, who had no choice in the matter of their husbands. For what countless millions of brides was the marriage arranged by barter between their fathers and their future household lords, sometimes the father requiring a purchase price, sometimes the bridegroom demanding a dowry. What millions of girls have been selected while mere children as the future wives and slaves of their husbands and the family drudges of the household. How many millions of brides and bridegrooms have never been consulted as to their personal feelings or desires, but have been married because the elders of their families decreed it. Under all such conditions, if husband and wife developed affection for each other, that was so much of advantage to them from the combination; otherwise they must adapt themselves as best they could to the daily round of life in their common dwelling and throughout their family responsibilities.

Trial marriages have been an experiment in many societies. They are based upon suspicion and expectation of termination, instead of upon that wholehearted confidence and expectation of endurance which is the basis of a permanent relation. Psychologically, therefore, their basis is false and weak. They presented a crude method of testing mutual adaptation and affection, which to-day may be gained by visiting a few weeks in each other's families, by thorough preliminary discussion of problems of adjustment, and by consultation with a competent physician, biologist, and sociologist or a mature and thoughtful counsellor.

Thus has marriage evolved by stages from biological matings, based on physical attraction; to the business contract, based on economic relations; to the social contract, based on social advantage to the family, clan, or State; and finally to a spiritual relationship, based on mutual social and intellectual interests and ties. Romantic love as a general experience in marriage has developed only during the past few hundred years. No one of these phases — the biological, economic, social, or spiritual — can be ignored in marriage to-day without disaster, as divorce records and daily observation show so clearly. To ignore the higher relationships and base marriage simply on the biological or material is to revert back to a lower stage in human development. A marriage based simply on physical attraction soon loses its glamour, and is as a house built upon the sands. The enduring ties are those of spiritual comradeship. It is this spiritual-biological love, evolving with the personality and soul of man, that has inspired the great wealth of spiritual creations in poetry, music, drama, and painting.

The American young woman of to-day, especially of the middle classes, is economically, socially, and religiously free to choose from among her suitors the one she finds most congenial and whom she really loves. Legislators are providing in many States for the woman's equal rights in marriage to her person, property, and children. Churches, associations, and parents are awakening to their responsibility in providing natural and wholesome social opportunities for young men and women to become acquainted. If a woman does not find her ideal in the community where she lives, she is socially free to migrate to any part of the country, enter any one of a thousand occupations, and seek until she finds a suitable helpmeet. In this country, in contrast to Europe, there is an excess of some two million men in the population. She will find a large proportion of young men of her social class and education, whose standards and habits of life are as fine as Sir Galahad's, who have the economic ability to make a comfortable living, and who are ready to coöperate intelligently and whole-heartedly in home-making. The young man of to-day will find an increasing proportion of young women who combine physical charm, social gifts, intellectual comradeship, home-making instincts, and preparation.

Why Homes Are Broken. In a country where divorce is easily obtained by either husband or wife, for serious cause, the proportion of divorces is an index (1) to the percentage of dissatisfied couples (which will always be considerably higher than the percentage of divorces); and (2) to the intelligence and forethought with which young people enter marriage. The census of 1910 estimated one marriage in twelve ending in divorce, and counted as direct parties about one half of one per cent. of the population, something over three hundred thousand men and women, with children involved in about sixty per cent. of these families. The causes stated in the court records would, of course, be only those allowed in the laws as the legal grounds for granting a divorce. These, in the order of their frequency, were (1) desertion by the husband, (2) cruelty of the husband, (3) desertion by the wife, (4) non-support by the husband, (5) cruelty of the wife, (6) adultery. The most frequent real causes, as found by social investigation, are lack of self-control, lack of mutual ideals in regard to sex relations, ignorance of sex hygiene, use of alcohol, irresponsibility, economic extravagance, disagreement regarding the family income, hasty marriage after brief acquaintance. Among the other causes productive of discord are selfishness, insincerity, false pride, nagging, poor housekeeping, the husband's lack of economic ability; marked differences in age, education, social status, religion; abnormal craving for social excitement; unnatural, crowded, unattractive homes.

How Homes Are Made Steadfast and a Benediction. The fundamental requisite of family happiness is love; not merely sex attraction, which may be wholly selfish, but love that is service, happier to give than to receive, willing to share. In some respects similarity between husband and wife is important in their social and intellectual tastes, moral standards, religious faith, refinement, love of children, rate of ability to progress, degree of seriousness or frivolousness, ardor and expression of affection. These make for congenial daily living. In some respects complementary qualities are desired. If one is impatient, the other may well possess a degree of patience and sense of humor to meet this; if one is extravagant, the other should be thrifty; if one is radical, the other may well be conservative, although marked extremes would always clash. The degree of positiveness in the one should approximate that in the other; if equal, neither is willing to yield; if very unequal, one domineers the other. These complementary traits make for balance of family life. The qualities that each should possess would include responsibility, self-control, sincerity, kindliness; freedom from drugs, conscientious abstinence from alcohol and from vicious habits; a degree of maturity and experience equal to the responsibilities of home-making (usually not under twenty years for women and twenty-one for men), love of home life and of children; good health, freedom from any serious germ disease, a family history free from criminal tendencies, alcoholism, mental defects, tuberculosis. A gambler, spendthrift, flirt, vacillating or superficial man or woman, or one who is " sowing wild oats " has not the qualifications for establishing a home. The man should be able to earn a comfortable living, and the woman to administer the household efficiently and smoothly. Every woman should have some means of making her livelihood at the time she marries; it will greatly increase her husband's respect for her and be a source of confidence to herself. She usually cannot do better, from the economic aspect, than to become thoroughly skilled in phases of home-making.

How the family income should be divided, what share the wife shall have for household use and for her personal use, is so diplomatic and acute a problem that it should be as sincerely and frankly discussed as all these other phases.

Whether the wife should undertake work besides managing the home-making is a moot question. Certainly her first responsibility is to make a home not only comfortable but inspiring. She needs to have such opportunity for relaxation, meditation, reading, personal development, that however weary and tense her husband may return in the evening, she can give rest, good cheer, and refreshment of spirit, because of her reserve of vitality, and can send him each morning to his work with the courage and good spirits stimulated by her blitheness. She needs, also, to be storing reserve strength for her children.

The location of the house greatly affects the family life. Ideally, it should be a separate dwelling, with a porch for outdoor social life, a garden where all members of the family have room to work and play, with rooms enough for individual privacy; and it should be owned, not rented.

The minimum income on which two people may advisably marry will depend largely upon their degree of adaptability, patience, and sense of humor. Acquaintance before marriage may safely be not less than a year and preferably two, not only for thorough and sincere acquaintance, but for the possibility of the reaction and even repulsion that is so likely to follow a violent case of love on short acquaintance. If love is too ardent, it needs this discipline of patience and restraint. If it is deep enough to last through the rest of time, it will stand the test of waiting.

Having established their home, husband and wife may well cultivate their love wisely, seeing that it does not starve from lack of service in little thoughtfulnesses; that it is not surfeited by too much of sweetness or selfish expression; that it is protected by residence separate from relatives, friends, strangers; that both have individual social life and friends and pursuits so that they do not become wearisome to each other; that they busy themselves in some mutual objective interest — social welfare, club, lodge work or a reading course. The few minutes spent together each day in gaining inspiration, either in religious worship, or reading from some great book, or singing noble songs, will do much to keep the family life harmonious and to reduce the petty frictions. It is well to agree on the first day — and carry through the agreement — that if misunderstanding or the least suspicion arises, it shall be frankly and thoroughly faced, discussed, and eliminated, remembering that it is "the little rift within the lute" that silences the music. Then, as the poet sings:

> "Through the long years liker must they grow,
> The man be more of woman, she of man;
> He gain in sweetness and in moral height,
> Nor lose the wrestling thews that throw the world,
> She, mental breadth, nor fail in childward care,
> Nor lose the childlike in the larger mind;
> Until at last she set herself to man
> Like perfect music unto noble words."

CHAPTER III

FINDING THE MEANS FOR MOTHERCRAFT

> "Efficient housekeeping is the beginning of good citizenship."
> — PROFESSOR MARTHA VAN RENSSELAER.

The Budget. Many young people hesitate to marry on a modest income, either through confessed inability to manage a small budget, or an unwillingness to begin humbly and live simply. Many mothers are sorely perplexed over the problem of finding time and energy from their household work for the education of and play with their children. Parents are perplexed over how to provide for and educate more than one or two children in what they consider a fitting manner.

Efficiency Methods. The whole complexity may be reduced to definite problems of philosophy, scientific efficiency, physics, and mathematics. The first step is to appreciate the relative value of life and of things, of genuine simplicity and vulgar show; of educating the children to share, to carry responsibility, to be self-reliant, or to be selfish, dependent, luxury-loving.

Second, all the labor-saving machinery in the world will but slightly reduce the output of time and energy in the household work unless the worker will apply her mind to the problem, adapt herself to new ways of performing a piece of work, and be willing to think.

Third, the individual problem must be studied. Have a regular monthly session to analyze seriously, with pencil and paper, the household situation, and to question every process of work and every expenditure.

Can the household régime be made simpler yet socially efficient? Where is there waste of energy, time, materials, income? How can the accumulation of dirt and dust be reduced? How can dishwashing and laundry work be reduced? How can time spent in cooking be decreased? How could any work be done in a less tiring position? Where could there be a reduction in the number of steps, trips, arm movements, duplications of work, arranging which requires later disarrangement? Where could pipes, drains, hose lines, faucets, pulleys, speaking tubes, signals, or other simple mechanical devices reduce time and labor? What work could be done by a part-time helper at an hourly or daily rate? What is the difference in cost between food cooked at home or purchased already cooked? What has been the loss from food wasted, spoiled, thrown away, improperly cooked? Could any foods be purchased directly from the producer, with a saving of cost? Are the dealers sending honest measures and correct bills? How could a reduction be made in the cost of fuel or of lighting?

Domestic engineers, housekeeping experiment stations, household efficiency laboratories already exist, but they are so new that the terms are not yet quite familiar. It may prove a great saving of time and energy to consult one of the new domestic engineers, whose business it is to analyze a kitchen or a house or a family budget, plan its rearrangement for economy of time, energy, and money, recommend labor-saving machinery, or organize a system of routine.

Fourth, begin at once to put efficiency principles into practice in the household work. Do not dawdle or potter over work. Analyze the work of the household into units, for example, preparation of breakfast, laying and clearing the dining table, care of a bedroom, washing the dishes. Specify the maximum amount of time each unit *is worth*, then see how this can be reduced, using the fewest arm motions and least walking.

Saving Time and Energy. Learn to plan and organize work. Have a monthly, weekly, and daily schedule of work. It will often be necessary to vary this, but a well-planned schedule will nevertheless reduce the time otherwise wasted in unnecessary duplication and without definite purpose. "A stitch in time saves nine." This applies to sanitation, plumbing, cleaning, gardening, colds, and sore throats, as well as to socks and frocks.

Study how to eliminate useless motions. Make exact studies, using a watch and a record pad. Observe how many trips were made in laying the table, and the length of time required. Discover ways of reducing this by half, through use of a tray, more convenient arrangement of supplies, fewer dishes, simpler service. Make similar studies with other processes, such as cleaning a room, or preparing a meal.

In an ordinary household, preparation of breakfast for a family of five persons should not require more than half an hour; lunch from twenty minutes to an hour; dinner from half an hour to two hours. The daily care of a bedroom should be completed in ten to twenty minutes. Washing of dishes, clearing of dining room and kitchen, should be finished in from twenty to sixty minutes after a meal. The weekly washing for such a family should be completed in four to six hours, and likewise the ironing. Five hours a week is enough to spend in baking, and only two should be necessary if bread is not made.

Make out the menus for a whole week, revising daily as necessary. This will assure better-balanced menus, more variety, economy of time and money in marketing, and will prevent the worry of unpreparedness. In marketing, purchase a two or four months' supply of such staples as can be bought and stored advantageously. Have a regular day weekly to inspect supplies and order staples. Have two or three regular days a week for purchasing fresh vegetables, fruits, meats.

The general architectural plan of a house, finish of walls and floors, construction of windows, doors, wainscoting, corners, mopboards, can make hours of difference in the week's labor. Even when the general architecture cannot be altered, the floors may be improved. Carpeted or waxed floors are the most difficult to care for, while those painted or oiled are easiest. Useless bric-a-brac, carved and ornate furniture, all are dust and germ holders, and consume an extravagant amount of time for their care. For every unnecessary and useless piece of furniture, drapery, or utensil, the housekeeper must pay a tax of time and strength in handling. The Japanese have learned the beauty of simplicity in house furnishing.

Rearrange the plan of the kitchen until supplies, utensils, stove, water, sink are so placed that there are fewest steps and motions, and it is as convenient as an apartment house kitchenette. Tables, sinks, and ironing boards adjusted to the height of the worker will economize energy. A low stool to stand upon will reduce the height of work tables; a detached wooden frame or block on top of a low kitchen table or sink will often give the desired height without stooping. A cushioned stool or chair to sit upon while doing stationary work, or a soft rug under feet while standing, all add to comfort.

Electricity is the housekeeper's man-of-all-work. It can heat, light, cook, supply the energy for the vacuum cleaner, washing machine, wringer, dishwasher. In some communities it is now furnished at a sufficiently low rate for such general use, and other communities can have the same low rates whenever the housekeepers organize and demand it.

Simple cooking is more digestible, nourishing, economical of labor, and, to a natural appetite, more appetizing. The most valuable part of potatoes and apples is next the skin, the removal of which before cooking is wasteful of time and materials. A coal stove is an enormous consumer of time and energy. An alcohol stove furnishes the cleanest method of cooking, quite practicable, with a fireless cooker and steam cooker, for a small family. Next in convenience, and more economical, are the gas or oil vapor stoves. A good fireless cooker vastly reduces the time required in the kitchen, and cuts the fuel bill in half.

In serving meals, labor is saved by using a tray, or better still a wheeled tray with several shelves, which may be drawn up to the table to hold the additional courses and the soiled dishes as removed. A special tray that will fit the cupboard shelf, to hold the constant accessories, will save handling.

Dishwashing is an ever-recurring, three-times-a-day problem. There are several fairly good dishwashing machines now on the market, both electric and hand-power. If dishes must be washed in the old-fashioned way, engineering efficiency can be put into it. After washing, scald the china in a wire basket such as business offices use for holding letters, and leave to dry without wiping, then place directly on trays to take to the table instead of placing on shelves only to take down again. In times of stress or of picnic spirit, papier-mâché or wooden dishes will save time.

For cleaning have a vacuum cleaner, carpet sweeper, hair floor brush, dustless mop, dustless dusters or cheesecloth dampened with kerosene, wax oil or furniture polish. It takes an hour or two after sweeping for dust to settle; this interval should be allowed before dusting furniture.

If good laundries, guiltless of injurious chemicals and extravagant rates, are not available in the locality, a coöperative laundry providing these features may be organized and conducted by the women of the community, as in many places in Wisconsin. If laundry work must be done at home, an equipment of a good washing machine or even a hand vacuum washer, a wringer, stationary tubs, hose lines, running hot and cold water, with sewer connection for waste, greatly reduce the time and energy cost. A cold mangle or one heated by gas or charcoal costs but a few dollars and reduces by about seventy-five per cent. the labor of ironing flat work. Gas or electric irons are inexpensive and energy saving. Necessary laundry work may be greatly minimized by providing silk or cotton crepon for underwear and dresses, seersucker for children's rompers, dresses, and aprons, with doilies or paper napkins in place of tablecloth, at least for breakfast and lunch, and paper towels for kitchen and bathroom.

The physical and mental condition of the worker is a very considerable factor in time and energy cost. Work attempted when one is fatigued, nervous, or tense consumes vastly more energy and time. Learn to relax at intervals; especially lie down for a few minutes about midday. " Never stand when you can sit; never sit when you can lie down." If becoming nervous or tense, relax completely, and take long, slow, deep breaths of fresh air. Stand with the weight on the balls of the feet, head erect and chest expanded. Keep the house air in winter at efficiency point: between 65° F. and 68° F. in temperature, and sufficiently humid by well-filled water pans in furnace pipe or by large open dishes of water in room, and with a constant intake of fresh outside air.

Making the Most of the Family Income. Analyze the family income and spend it on paper many times before spending it over the counter. Train the family to spend less than is planned, rather than more. Ordinarily, for incomes up to three thousand dollars, the following is considered by economists a wise distribution, in a family with three children:

Rent	20%
Food	25%
Operating expenses (heat, light, repairs, labor, supplies)	15%
Clothing	20%
Education, recreation, health, saving	15–20%

Personal ordering and selection of supplies, paying cash and keeping accounts, will furnish the greatest values for expenditures. Accurate scales and measures in the kitchen, with occasional tests of supplies sent, will check errors or dishonesty of marketmen. Cost of supplies may be reduced by keeping posted on market prices; buying in wholesale quantities where possible, in coöperation with other housekeepers; buying directly from the producer wherever possible; knowing the reliable grades and brands of package goods. A knowledge of the values of common foods and their comparative cost for equivalent food value is indispensable for efficiency. A reasonable allowance is two dollars to two dollars and a half a week for food supplies for each person. An ample quantity (eighteen hundred to two thousand calories a day) of nourishing food of limited variety can be purchased for one dollar a week. Luxuries should be had on a four dollar weekly allowance per person.

The following table can be expanded by any housekeeper. For other food stuffs: Note calories per pound. (Given in Government Bulletin Number 28 or Rose's Laboratory Manual in Dietetics.) To find the number of calories for one cent, divide calories per pound by cost per pound. Fruits and green vegetables, although furnishing few calories for one cent, are needed each day, for their vitamines, acids, and minerals.

Comparative Caloric Food Values and Cost

Food	Calories per Pound	Cost per Pound	Calories for One Cent
Oatmeal	1803	4 cents	451
Corn meal	1613	4 "	400
Dried peas	1612	8 "	201
White bread	1174	6 "	196
Potatoes	378	2 "	189
Milk, per qt.	675	9 "	75
Rice	660	10 "	66
Flank steak	1084	18 "	60
Shredded wheat	1600	33 "	48
Salmon	922	20 "	46
Sirloin	957	28 "	34
Eggs (28 cents a doz.)	672	21 "	32
Flounder	128	7 "	20
Chicken	289	25 "	12

Locating the Home. Life in the open country, town, or suburb reduces the cost of living, as compared with the city, (a) by reducing the stimulation and excitement of daily life, and their energy cost; (b) reducing the temptations to extravagant and frivolous expenditure of money; (c) furnishing better air and more outdoor living, thus increasing the quality of life besides decreasing expenditures for illness; (d) providing a porch and yard where children may play in sight of mother at work, and where the family may find social life; (e) providing space for garden and poultry, whose care is healthful exercise, and whose products may reduce the expenditure for food. By purchasing staples at wholesale and organizing a coöperative marketing group for fruits and vegetables, as wide a variety and as low a cost of food is possible as under most favorable city conditions. The provision of rural traveling libraries, art exhibits, educational picture films, the use of the schoolhouse as a social center, the improvement of education in the rural and suburban school with its ideal natural environment, all are part of that larger home-making for which every mother and father should feel a responsibility.

The Value of Life and of Things. "The things that are seen are temporal; the things that are not seen are eternal." Do not mistake the means for the end in housekeeping. Orderliness, immaculate linen, garnished rooms are means. Good cheer, patience, kindliness, reserve force, poise are of vastly greater value. Often it is necessary to choose between the two. Cherish simplicity, beauty, courtesy, rather than conventionality, aping of passing modes, vulgar show, and ostentation in the house, equipment, household service, the clothing of the family. Train every member of the family to be responsible for the care of his own belongings and to wait upon himself as his share in social coöperation.

Let the children from toddling time help in the household duties and chores. It will be for their guardians a good training in patience, adaptability, and sympathy. What if their work is crude, with many mistakes and mishaps? They are learning motor coördinations, manual dexterity, a knowledge of homely routine, the meaning of labor and service, the joy of workmanship and creation, the satisfaction of self-reliance, the happiness of intimate comradeship with mother and father. Their character development is the great consideration, not the materials they are handling or the petty work they are accomplishing.

CHAPTER IV

FOUNDING A FAMILY

"The business of life is the transmission of the sacred torch of heredity undimmed to future generations. This is the most precious of all worths and values in the world."

— G. Stanley Hall.

"The young people of the next and all succeeding generations must be taught the supreme sanctity of parenthood — that the highest profession and privilege they can aspire to is responsible fatherhood and motherhood."

— C. W. Saleeby.

Solicitude for the Child as a Factor in Social Progress. The eugenic education of children is the real beginning. Parents can give to the little children in the home true ideals of parenthood, wholesome respect for maternity and paternity, training in the control of desires and appetites, a controlling sense of their personal and social responsibility, and true instruction regarding the origin and creation of life.

So to live that their children shall be strong and happy is a motive that a child can appreciate, and it can become the most powerful incentive for hygienic living, for industry, education, for social purity that is positive — noble in thought as well as restrictive in action. Trained thus through childhood, boys and girls will be prepared to meet with high-mindedness and moral stamina the storm and stress of adolescence; their ideals of sweetheart and lover will have a wholesome eugenic prejudice, and they will be prepared to discuss with dignity, scientific spirit, and reverence this significant phase of their future home life.

There is no essential contradiction between romantic love and eugenics. Indeed, sincere, deep and enduring love of parents for each other and for their children is an essential in a eugenic ideal. A young woman knows a hundred young men, but is in love with only one (or possibly none) because the others do not embody the ideal that she has fashioned. Every young man and woman has such an ideal, perhaps only vaguely defined but certainly felt, with which they are in love, for which they search, and with which they sometimes invest an acquaintance only to discover later their illusion. This ideal is composed of the most alluring qualities and personalities they have known.

What young man would be likely to fall in love with a girl, however pretty, even charming, whom he knew could be the mother only of sickly, peevish, stupid children to inherit his name and perpetuate his family, or who would refuse to assume the burden of motherhood? What normal young woman would be attracted by any "fairy prince", however romantic, wealthy, handsome, if she were aware that his children, should he have any, would be doomed to early death, weakness, or imbecility, and that she herself would be made a sufferer for life? The widespread tendency of young men and women of to-day to include beauty, vitality, and ability in their romantic ideal is itself sufficient evidence. Young men and women are generally too well balanced to marry simply from eugenic consideration without romantic love, although this is less reprehensible than marriage simply for title or livelihood, for social distinction, or personal creature comfort without consideration for either eugenics or romantic love. The prayer of Hector, as he lifted his little child in his arms in the tower of Troy, while the battle raged without the walls, is the prayer of the parent heart everywhere, that the child shall be nobler and greater than the father.

The normal biological life for every man and woman is parenthood. The normal social relation between parents is mutual, abiding love. Only through the development of such a love has humanity evolved from the materialistic, individualistic stage of the animal to even the present stage of spiritual life and social relationships.

It is mutual solicitude for the child that places the biological relations of men and women on a wholesome, ethical, and spiritual plane. Historically, marriage and monogamy are the result of children. The social stigma upon illegitimacy is not artificial or unreasonable. It is the deep appreciation by the social experience of humanity that parental responsibility and solicitude is at the very foundation of society; that the selfish, reckless use of this creative power, or a cuckoo-like disregard for the child's life, is undermining to society as well as to the character of the man, the woman, and their child. The far-sighted perceive, too, that the undermining influence of physical relations without spiritual purpose, of individualism that ignores social responsibilities, of blind, unreasoning following of any impulse, in this, as in any phase of life, is quite as destructive to the man, the woman, and society, even without the penalty of the unwelcome child; that usually the man is more blameworthy than the woman; that both are often the victims of ignorance, lack of ideals, and of early training in responsibility and self-control; and that similar selfish lack of solicitude for their child is equally reprehensible within and without marriage.

The child is the equal creation, responsibility, and satisfaction of both father and mother. The parent who willingly shirks the responsibility for the care of his or her own child is a coward, if not a knave or a defective. The father who would voluntarily forego his share in the care and companionship of his child, or the mother who would demand this, are equally lacking in parental instinct.

Celibacy, marriage without love, parenthood without marriage, are equally undesirable. But if circumstances require a choice, celibacy is less miserable for the individual and less detrimental to society. It is part of the great social responsibility of parents and social administrators to remove the causes of celibacy by:

1. Providing academic, social, and moral education that prepares young men and women for congenial companionship and for home-making;
2. Making provision for wholesome recreational opportunities and acquaintance, for young men and women of similar intellectual and social interests;
3. Affording the economic opportunity for a family income for young men by their early twenties, through vocational training, regulation of the cost of commodities, direction of labor conditions;
4. Abolishing war, that fiendish Minotaur that not only interferes with Nature's provision of an equal number of men and women in any generation, but that, more serious still, devours the ablest and strongest of the young men, depriving millions of women of their husbands and their children.

The Meaning and Significance of Eugenics. Eugenics, as defined by Sir Francis Galton, is "the science which deals with all influences that improve the inborn qualities of a race and that develop these to their utmost advantage." Wise men in former ages have perceived something of its possibilities.

Positive eugenics is concerned with whatever will enhance the inborn qualities of a new generation, therefore with social conditions that promote the mating of the physically, mentally, and morally able; with conditions that improve the quality of the germ cells in the individual; with ideals that develop self-control and the spiritualizing of the instinct of race preservation.

Negative eugenics is concerned with the elimination of hereditary diseases and defects; with the prevention or correction of diseases, defects, poisons, and practices in the parent that have a harmful effect upon the germ cells and the unborn child; with the elimination of social and moral conditions that endanger the life or handicap the progress of unborn generations.

Genetics, the study of the laws of heredity, is the biological foundation of the science of eugenics; ethics and religion are the basis of practical eugenics.

In the past century great impetus was given to eugenic research and ideals by Sir Francis Galton, a cousin of Charles Darwin. Galton, indeed, coined the word "eugenics" from two Greek words meaning "well-born." To quote from Galton's own writings:

"Man is gifted with pity and other kindly feelings; he has also the power of preventing many kinds of suffering. I can conceive it to be within his power to replace Natural Selection by other processes that are more merciful and not less effective. This is precisely the aim of eugenics. Its first object is to check the birthrate of the unfit, instead of allowing them to come into being, though doomed in large numbers to perish prematurely. The second object is the improvement of the race by furthering the productivity of the most fit by early marriages and healthful rearing of their children. Natural Selection rests upon excessive production and wholesale destruction; eugenics on bringing into the world no more individuals than can be properly cared for and those only the best stock."

Galton devoted his time and his fortune to the investigation of these principles and the propaganda of eugenic ideals. He made extensive studies of family histories, especially to ascertain what evidence they gave of the inheritance of physical, mental, and moral traits. He organized the Eugenics Education Society, whose leaders include eminent scientists, sociologists, physicians, educators, and under whose auspices the First International Eugenics Congress was held in London in 1912.

Present Knowledge of Heredity. More has been learned about heredity in the past quarter century than in all previous history. Through the inspiration of Galton, extensive studies have been made of family histories in many countries, and not only has the certainty of inheritance been established, but some of the laws of heredity have been formulated. Through the laboratory studies made possible by the improvements in the compound microscope, important discoveries have been made of the physiological processes and the mechanism by which characteristics are inherited. This is the summary of our present knowledge:

Physical and mental characteristics are inherited.

Inheritance is of definite traits, such as eye color, height, musical genius, high or low resistance to a germ disease, for example, tuberculosis. Research work in genetics is at the present time especially concerned with discovering what are the unit characters and how each is transmitted.

Special cells, called germ cells, are the carriers of heredity; these contain the determining factors for physical and mental characteristics. These, like all the other cells of the body, are microscopic in size. The body of the individual is the temple in which the sacred cells of the race are protected.

Inheritance is not directly from the parent but from the germ cells, which may carry characteristics not found in the parent but in some of the other ancestors. An individual does not inherit what his parents *are* but what is in the two germ cells, one from the mother, one from the father, that unite to form that individual.

With the union of the two germ cells the inborn characteristics of the individual are determined, "the gate of gifts is closed." Environment and training may increase the strength, or minimize the force of inborn characteristics, or even suppress some of them, but it cannot add to them, or increase their force beyond their inherent limitations.

Some few characteristics are inherited only through the mother, or only through the father, or are transmitted only to the sons or only to the daughters; most characteristics are not thus limited, but may be transmitted by either parent to either son or daughter.

Acquired characteristics are not inherited. If a man loses his hand in an accident, his descendants cannot inherit one-handedness; if he masters a foreign tongue, his descendants cannot inherit his knowledge of that language.

No disease germ is inherited, in the genetic sense of being conveyed in the special germ cells. A child may be infected with a disease before its birth; this is not, strictly speaking, heredity but congenital (or prenatal) infection. Tuberculosis is sometimes thus conveyed from the mother, and syphilis very frequently when either the mother or the father has this disease even in latent form. What may be inherited is a tendency toward a disease, a weakness of specific organs or tissues, a lack of resistance to a specific disease.

Variations sometimes appear apparently spontaneously, as the result of some accident to the germ plasm, or an unusual combination in the two germ cells; such variations may be inherited.

Some characteristics are apparently persistent, and in the process of inheritance tend to predominate over their complementary characteristics. The former are called dominant, the latter recessive characteristics.

The law by which dominant and recessive traits are inherited was first formulated by Mendel, an Austrian monk, less than half a century ago. Biological research is being devoted at present to discovering what traits of human significance are subject to this Mendelian law, as it is called.

A characteristic found in both parents, or in both families, has a double possibility of appearing in their descendants, and some mental defects and abilities tend to appear with greater force and at an earlier age, in the descendants.

Every individual is born with all the germ cells he will ever possess.

These germ cells are highly susceptible to poisons in the circulation, especially to:

(1) alcohol, even in dilute quantities,
(2) fatigue poisons,
(3) opium, morphine, and similar drugs,
(4) lead and other poisonous metals,
(5) lack of nutrition due to anemic condition of the body.

If a germ cell is thus affected by poison at the time of the uniting of two cells, or during the subsequent development, the child is especially liable to:

(a) serious injury resulting in death before birth;
(b) low vitality resulting in death within a year after birth;
(c) defective development resulting in physical deformity or in mental defect, such as feeble-mindedness or idiocy.

If either parent is infected with syphilis, the germs most frequently attack the developing child and cause death before birth or during the first year; or the germs may attack any tissues, crippling, producing deformities, deafness, blindness, idiocy, manifest either at birth or later in life. If either parent is infected with gonorrhea, the eyes of the child will probably be infected at birth, and blindness prevented only by immediate use of silver nitrate solution; or the mother may be made incapable of having a child.

Fitness for Parenthood. Even the minimum qualifications for parenthood are various. For the fullest welfare of the child the following qualifications are essential:

Spiritual: a sense of the responsibility of parenthood, love of children; love of harmony and mutual agreement between parents; self-control, unselfishness, patience.

Social: legal marriage, good moral character.

Economic: marketable skill, energy, adaptability; ability of father to earn a comfortable living, potential ability of mother to earn a living, ability to use income economically.

Mental: Maturity, experience, judgment to conduct one's share of the family and household responsibility, ability to learn; for the mother, knowledge of at least the elements of hygiene, child-care and training, some experience in caring for little children.

Physical: physical and mental soundness; sound heredity, especially freedom from neuropathic taint, alcoholism, tuberculosis, venereal disease (syphilis or gonorrhea); freedom from poisons of alcohol, fatigue, worry, overwork; mother not less than twenty or more than forty-five; father not less than twenty, preferably past twenty-four; maximum vitality and physical energy.

Blood tests recently discovered make possible the diagnosis of tuberculosis and venereal disease in the system, even when no symptoms are obvious. It is estimated that about twenty to thirty per cent. of cases of venereal disease are innocently acquired, through public drinking cups, towels, lavatories, toilets, or by infection of the husband or wife after marriage. Infection is usually acquired through sex immorality.

The certainty of a cure can never be made absolute; the probability requires years of persistent treatment by a responsible physician, not a quack. The man who has "sown his wild oats" has verily sold his birthright for a mess of pottage, and is most liable to have acquired one of these loathsome diseases, habits of drinking, and of self-indulgence. It is dangerous to his wife and children for him to become a father until all of these have been overcome. A woman who contemplates marrying such a man to reform him is inviting disease and destruction upon herself and her children.

Some individuals should never become parents because they carry so serious an hereditary taint which some of their children would probably inherit and carry on. This includes individuals afflicted with the following:

Neuropathic taint: feeble-mindedness, idiocy, insanity, mania, epilepsy, hysteria, chorea, sex perversion, alcoholism
Syphilis
Tuberculosis
Deaf-mutism
Otosclerosis (hardness of hearing due to rigid eardrum)
Catarrhal deafness
Retinitis (progressive degeneration of retina and atrophy of optic nerve, producing blindness)
Albinism (absence of coloring in hair and eyes)
Inherent lack of physical energy; pauperism

If an individual with a family history that includes one of these taints in hereditary form should marry an individual having a family history with the same taint, some of their children would probably be afflicted with the taint, and others of them would carry it on. Marriage of blood relations, such as cousins, is subject to this law; it is eugenically permissible, provided the same hereditary defect does not appear in both family histories.

The most advantageous years for parenthood, for the welfare of the children, are between twenty or twenty-five and forty years of age for the mother and past twenty-five years for the father. An interval of two or three years should elapse between the children, to give ample opportunity for the mother to gain reserve vitality and to care adequately for each child.

On the average, four children to a family are required merely to maintain a constant population; families in which the average is less than this are in danger of extinction.

As soon as its far-reaching significance to themselves and to their children is generally perceived by parents and young people, men and women who genuinely love each other will voluntarily give and absolutely require a medical certificate before marriage. Before undertaking the responsibility of parenthood, both mother and father should put themselves into the best possible physical and spiritual condition, and if necessary, go through as thorough a course of training as that of any aspirant for an athletic prize or of any priest for a great spiritual work. The Vedas, the sacred books of the Hindoos, contained special prayers for those about to assume this creative work.

Nature has provided one effective, safe, and ethical method of limiting the birth rate in the family, a method that is entirely in the control of parents. This method is abstinence, except for the end to which nature implanted this instinct, — the creation of a new life. It is conducive to the welfare of the children. This is in no wise harmful to the physical, mental, social, or spiritual well-being of men and women, if both are temperamentally adapted to each other, mutually agreed, and thoroughly honest with each other; if they have learned to transmute this instinct and energy to other activities; and if their recreations, personal hygiene, and adjustment of daily living are normal and wholesome, not artificially stimulating.

In conclusion, to quote from two English writers:

"By no other means than the realization of the ideal that every new baby shall be loved and desired in anticipation — an ideal that is perfectly practicable — can the black stain of child murder and child torture and neglect be removed from our civilization."

— Saleeby.

"Hitherto the development of our race has been unconscious, and we have been allowed no responsibility for its right course. Now in the fullness of time we are treated as children no more, and the conscious fashioning of the human race is given into our hands. Let us put away childish things, stand up with open eyes, and face our responsibilities."

— Whetham.

CHAPTER V

GROWTH AND DEVELOPMENT

> "The child should know no other endeavor but to be at every stage of development wholly what this stage calls for. Then will each successive stage spring like a new shoot from a healthy bud; and at each successive stage he will with the same endeavor again accomplish the requirements of this stage; for only the adequate development of man at each preceding stage can effect and bring about adequate development at each succeeding later stage."
>
> — F. FROEBEL.

CHILDREN do not grow and develop by any haphazard process. Too often parents have had so little, either of first-hand acquaintance with other children, recollection of their own childhood, or knowledge of the literature of child-study, that they have fumbled in the dark, misunderstanding and experimenting on their own children, without either standards for comparison or principles for guidance.

There is a wealth of material, both technical and popular, available in this "century of the child." The impetus given to the study of the child by Pestalozzi and Froebel a century ago has gained increasing momentum in Europe and America. Some investigators have made laborious studies of large numbers of children to ascertain average rates and factors of growth or development of some part of the body or some phase of spirit. Others have made painstaking, intensive studies of individual children and have reported the characteristics observed at different ages.

The outlines, main features, and basal principles are already defined. A knowledge of these is as essential to the intelligent worker with children as a knowledge of the processes of plant growth and development to the intelligent agriculturist. Many blanks and gaps in our knowledge of child development are yet to be filled. The father, mother, teacher who is sympathetic with child nature, who has the scientific mind for accuracy, definiteness and persistence of observation, has an opportunity to contribute to the common fund of knowledge of child life by making original observations of the child in the home. Hitherto most of the published studies, both of groups and of individuals, have been made by men. Doctor G. Stanley Hall has been the pioneer leader and chief inspirer of the child-study movement in America. Doctor John Dewey's contributions and inspirations have been both profound and extensive. Madame Montessori is the one woman who has made large contributions.

It should be noted that a science of child-study and development was not possible until the idea of evolution became known and appreciated. Froebel sensed this evolution, as will be noted in reading his "Education of Man", which was published a quarter of a century before Darwin's "Origin of Species."

This phase of psychology — tracing the stages of mental development as an organic process from its simple beginnings in the individual or the race to its maturity in adulthood of the individual or civilization of the race — is the field of genetic psychology.

The intelligent worker with children in the home must be acquainted with what is normal and usual at any stage, in child anatomy, physiology, and psychology. Only with such knowledge is it possible to make intelligent observations of the development of the individual child, and to supply a normal environment and guidance suited to his stage of development.

Such knowledge and preparation can be acquired only through study of the literature of child psychology, and through intensive, first-hand acquaintance with children.

It requires about twenty-five years for nature to bring a human individual from birth to physiological maturity. In the nine months before birth the growth and development is very rapid. All the organs are formed, but their development at birth is immature, especially the development of the nervous system. What is accomplished in these years?

From Birth to Maturity

Total weight	increases from	16 to 22 fold.
Length of body	"	3 fold
Size of muscles	"	37 "
Size of lungs	"	18 "
Size of heart	"	13 "
Size of brain	"	3 "
Weight of arm	"	4 "
Weight of leg	"	5 "

Note the great differences in increase of different parts of the body.

At Birth	At Maturity (25 years)
Stomach undeveloped	Complete digestive development
Few digestive juices	All
No provision for digesting starch until 8 or 9 months; fats (except cream); protein (except curds of milk); solid food	Digestion of all food elements, including solids
No teeth cut	Two sets of teeth cut
Sense organs: incomplete development, especially sight and hearing	Senses fully developed Fine sense discrimination
Reproductive system rudimentary	Reproductive system mature
Nerve cells undeveloped Few association fibers formed	Nervous system complex and developed

Medullary sheath not formed	
Motor ability limited to crying, grasping, reflex movements of arms and legs	Motor coördination of all muscles, including accessory eye and finger muscles
Mental ability limited to few vague, unlocated sensations, slight motor memory	Concentration, imagination, judgment, speech, all well developed
Language only a cry or instinctive movements of head, arms, legs	Fluent use of language
Emotions limited to slight pleasure-pain; no control	Wide range of emotions, potentially controlled and expressed
Volition rudimentary	Will power to achieve any purpose
Social, moral, religious instincts undeveloped	Sense of law and property rights Social coöperation Moral standards, judgments, and habits Religious feeling and action

After twenty-five years there is sometimes a slight increase in height and weight; plasticity is slight; new habits are not readily formed; new ideas not readily accepted. The nervous system is capable of continued development.

There are a few foundation facts and principles that should be summarized before taking up in detail the stages of growth and development.

The child is not a small edition of an adult. His anatomical proportions, his physiological processes, his ways of thought and of thinking, his motives, interests, likes, emotions, methods of expression, are all different from the adult's; and they are all different at different stages in his development.

The child lives through (recapitulates) in a general way the main stages and order of physical and psychological development that organic life and the race have passed through in the countless ages since life began. Starting as a one-celled creature, he recapitulates in the nine months of embryonic life the processes of evolution that required millions of years, from the amœba to the higher vertebrates, in the evolution of the species.

At birth the baby is less developed and more plastic than the young of any other creature at its birth. This helplessness and plasticity are due to the incompleteness in development of the nervous system. It is because of this incompleteness that the physical, mental, and spiritual life can be shaped in great measure by environment. It is this incompleteness that provides both the opportunity and the responsibility of parents and guardians.

For normal development there must be both the growth principle and power within the individual, and the growth stimulus and materials supplied by the environment.

The rate and nature of growth and development are influenced by two factors: (1) heredity (race, family); (2) environment (climate, social status, economic resources, city or country, materialistic or idealistic atmosphere, commonplace or cultured, ugly or beautiful, expressive or repressive, guiding or neglectful).

Growth and development are two different processes. Growth is increase in size; development is increase in power of function. This principle holds true for every muscle, every nerve, every special organ, every brain center.

Growth is a vegetative process, dependent upon intake of nutrition and elimination of waste. Development is dependent upon use, which involves the exercise of the organ or system and of the related brain center, and this leads to both (a) the initial use of mind and (b) mental development.

Each organ, each physiological system or process, each mental process, is controlled by its own definite nerve cells in the spinal cord and brain. By exercise of the specific organ or system, the corresponding nerve center is developed; and the development of the nerve center makes possible a more adequate and perfect use of the specific organ or system.

During the growth stage of any part, exercise of the part is not normal but injurious. When sufficient growth has been attained for development to begin, there is an instinctive desire or hunger for exercise of the part. This desire is manifested by the natural, spontaneous activity or interest of the child. For example, during some ten or twelve months the muscles of the legs and back, and corresponding nerve centers in the spinal cord and the brain, are growing. When their growth is attained, these muscles and nerve centers begin to function in the process of standing and walking, and the child makes every effort to walk. To put him on his feet and attempt to teach him before this stage, is to strain unprepared organs, bones, muscles, and nerves. To keep him lying in a vehicle so he cannot exercise when he spontaneously attempts to walk, is to retard or prevent this natural development.

The process of growth and development is not uniform during childhood; neither do all the parts grow and develop at the same time. Growth is periodic and by parts; it is variable for each part or system. There are periods of slow or rapid growth and development at different ages.

Development begins first for the oldest (racially) muscles and parts, and for those that are being used reflexly, that is, arms, legs, trunk, hands, which are known as the fundamental muscles. The finer, accessory muscles and their brain centers do not develop completely until several years after birth.

There are no average children. Every child is somewhat different. In rate of growth, children may normally vary one to two years from the average. In individual children, some factors at any stage will normally be more marked than others. Distinction must therefore be made between (1) chronological age, (2) physiological age, and (3) psychological age. The standards for (2) and (3) are at present the subject of special researches. Physiological age refers to such factors as dentition, development of bones, height, weight, sex maturity. Psychological age refers to mental ability and maturity.

In some children the hereditary force of a specific characteristic is stronger than in other children. Or the environment of one child gives greater stimulus to an instinct at its nascent (beginning) period, and greater opportunity for its use.

The individual who lives most completely in each stage the life normal to that stage, is best prepared for the succeeding stages of life.

To attempt to hurry a child through this process or to permit an arrest of development in any stage or at any point, is to seriously handicap the child's normal and complete development. Infant prodigies and infantile youths are both abnormal.

In each stage there are some instincts to be especially fostered, some that need encouragement or stimulation, some that require careful direction into useful channels, some to be ignored as only transitory, and a few that may need inhibiting.

The following group of stages has been prepared as possibly most helpful for guidance of parents and teachers in the home. The transition from one stage to another is gradual.

In so brief a summary as the following, only a few of the most significant items can be presented, and these typical of the average. This is not a form into which every child must be expected to fit. Rather it is a suggestion of the usual, which the individual normal child will approximate in general. It presents a method for recording the development of the individual child.

Infancy

Birth to 2–3 Years

Marked Characteristics:

Rapid growth, especially of brain
First dentition
Nervous system rapidly developing
Association fibers developing between spinal centers and brain centers
Bones, nervous system plastic
Rapid heat radiation
Rapid pulse, respiration
Tissues flabby
Low vitality

Motor and sensory development rapid
Motor coördinations developing rapidly
Speech develops

Interest in pure motor activity, and sensory experiences

Thinking exceeds power of expression
All mental processes developing
Curiosity about everything seen, handled, heard
Perceptions crude, few
Unconsciously imitative
Activity an end in itself
Imagination crude, vague
Reasons by association of circumstances

Emotions crude, uncontrolled
Fear of noises and strange objects
Humor in surprise

Social dependence
Little self-control
Obedience
Trust

Early Childhood

2–3 to 6–7 Years

Marked Characteristics:

Rapid growth
Nervous system rapidly developing
Rapid growth of brain until 7 yrs.
Fundamental muscles utilized
Accessory muscles immature

Activity its own end
Experiments in motor control

Greatest sensory development and efficiency.

Curiosity, analysis, investigation, experimentation strong
Interest in simple construction
Constructs for use

Thought concrete
Suggestibility
Continued plasticity
Attention flitting
Asks "What?" "Why?"
Memory for words
Æsthetic tastes crude
Frankness
Crude experience and association of ideas

Vivid, concrete imagination; images distorted
Imitation at its strongest
Imitative dramatic play

Humor in incongruity
Curiosity regarding sex biology
Sex feeling undeveloped
Emotions strong, slight control

Imaginary fears
Self-control weak

Selfish, thoughtless
Respect for parents
Wonder at universe
Obedience
Personification of nature
Conscience begins

Infancy and Early Childhood

Birth to 6 Years

Foster:

- Sensory and motor activity
- Trustfulness
- Curiosity
- Investigation
- Acquaintance with world of realities
- Initiative
- Wide range of interests
- Fanciful imagination
- Formation of permanent habits
- Sense of wonder

Cultivate:

- Regularity
- Respect for authority
- Concentration
- Thoughtfulness for others
- Courtesy
- Emotional control
- Permanent moral prejudices
- Thrift

Inhibit, or Overcome:

- Social dependence
- Fear
- Selfishness

Reckon with:

- Slow mental adjustment
- Motor awkwardness
- Misunderstanding of instructions
- Mischief, which is the result of an abundance of vitality, initiative, sense of humor, investigating spirit; it is not something to condemn, but for which to provide natural environment.
- Rudeness, which is due to childish frankness, democracy, thoughtlessness, examples of discourtesy.
- Curiosity regarding biology of sex, to be answered honestly but poetically under three years and biologically after three.
- Telling of falsehoods, from 3 to 7 years of age, frequently due to the vivid, imaginative life that the child is living, his relative inexperience with the world of realities, and the difficulty, therefore, of keeping the distinction clear between the two.

Later Childhood

6–7 to 9–10 Years

Marked Characteristics:

Growth progressing
Differences in growth rate of boys and girls
Second dentition
Sensory and motor activities prominent
Heart and lungs relatively small
Brain growing slowly, attains adult size
Eye development still incomplete: near sight

Finger movements stronger, more precise
Rapid increase in motor control
Forearm and finger control develops
Manual skill easily acquired

Interest in workmanship
Ideals exceed ability
Plasticity to habit
Receptivity
Routine easy
Experimentation, exploration strong
Interest in variety
Actions not well coördinated
Lack of perseverance
Easily discouraged
Adjustment to realities
Images truer to reality
Memory strong for concrete
Period of imaginative activity
Less direct imitation
Imitative and imaginative dramatic play
Emotions becoming controlled
Fears strong
Self-control vacillating
Humor in puns, riddles

Appreciation of rules in game
Beginning of social sense in group play
Slight sense of property rights
Slight conscience
Interest in religious forms (imitative)

Foster:

Exploration
Experimentation
Moral habits
Imaginative play
Variety of interests
Doll interest
Motor coördinations — skating, dancing, swimming

Cultivate:

Power of voluntary attention
Self-control
Initiative
Modesty
Conventional courtesies
Respect for property rights

Inhibit:

Cruelty
Fears

Reckon with:

Fatigue, due to bodily conditions
Discouragement, from greater increase in ideals than in technical ability

Youth

Girls, 9 to 12–14 Years

Boys, 9 to 14–16 Years

Marked Characteristics:

Slower growth
Period of transition
Practical adjustment
Reproductive organs maturing
Period of low morbidity
Heart and lungs relatively small

Great motor activity
Reactions vigorous
Resistance to fatigue
Immunity to exposure, danger, temptation
Senses acute
New adjustments and coördinations readily made
Routine and rote enjoyed
Motor skill easily acquired
Keen interest in workmanship and motor skill
Constructs for concrete purposes or use

Mental action better controlled, more connected, orderly
Memory quick, sure, lasting
More critical
Sex consciousness develops

Emotions weaker
Fear increases
Teasing other children

Less submissive to elders
Competitive sense increases
Conscience weak
Reverence weaker
Religious indifference

Foster:

Muscular activity
Motor and manual skill
Drill, memorizing
Routine, discipline
Three R's.
Responsibility

Cultivate:

Fine handwork
Thoroughness
Reserve (in girls)
Chivalry (in boys)
Confidence in parents

Inhibit:

Athletic competition (too great strain on heart)
Fear

Reckon with:

Less confidence in adults
Group interest
Secretiveness

Adolescence

Girls, 12 to 18 Years

Boys, 13 to 21 Years

Marked Characteristics:

Rapid growth and development
Proportions changing
Lungs, heart increase in size and function
Blood pressure increases
Muscular strength increases
Voice changes
Awkwardness
Senses keen

Craving for larger experience
Routine irksome
Power of concentration
Abstract thought
Independent thought
Mental speculation
Larger mental perspective
Memory strong, includes abstract
Abstract reasoning
Debating
Imagination strong, comprehensive
Original thought and action
Organized dramatics
Individuality increases
Works for remote ends

Restive of restraint
Sex feelings increase
Romantic interest strong
Social sympathy increases
Social coöperation
Subject to moods
Shyness and bashfulness

Conscience keener or very callous
Sense of duty develops
Spirit of social service or rowdyism
Religious feeling
Conversion period
Criminal period
Idealism
Hero-worship

Foster:

Idealism
Hero-worship
Altruism
Religious feeling
Group interest; team work
Leadership, individuality
Reasoning, debating
Constructive imagination
Athletics; physical activity

Cultivate:

Sense of reality
Emotional poise
Responsibility
Strength of will
Mutual sympathy (parent and youth)
Variety of interests
Vocational choice
Outdoor life

Inhibit:

Depression and pessimism
Finicalness
Recklessness

Reckon with:

Emotional upheaval
Philosophical speculation
Sex interest
Awkwardness, bashfulness
Self-consciousness
Reserve with family

Development of Language

Children vary naturally, and according to their environment, in the rate of development in use of language. Any effort to hasten the process of talking or vocabulary during the first four or five years is an artificial forcing that is more likely to retard development. The following represents all that should be expected of a normal child.

First six months: crying, gesture language

Second six months: babbling, imitation of sounds, gesture language

One year: three to ten words

One to two years: vocabulary of 100 to 500 words; two-word sentences

Two to three years: 500 to 1500 new words; begins use of pronouns

Three to four years: 500 new words; complete sentences

Four to five years: articulation nearly perfect; interest in rhyming

Five to six years: articulation perfect; inflection of nouns and verbs nearly perfect; interest in nonsense words; use of drawing

Six to nine years: grammar usually correct; interest in puns and in secret language; use of drawing as language expression; imitative interest in symbols of language (alphabet, reading, writing)

Nine to twelve years: genuine interest in language symbols; easily learns reading and writing; with limited vocabulary, slang develops

PHYSICAL AND MENTAL GROWTH AND DEVELOPMENT

PHYSICAL CHARACTERISTICS	BIRTH	FIRST SIX MONTHS	SECOND SIX MONTHS
Organs rapidly growing		Muscles, bones, brain, viscera	As first 6 months, and teeth
Organs proportionately large	Head, surface intestines, liver	Head, intestines, liver, surface	"
Organs proportionately small	Stomach, lung capacity, legs	Stomach, lungs, heart, legs	"
Organs proportionately strong in function		Anti-bodies, kidneys	"
Organs proportionately weak in function	Digestive and respiratory systems; tissues flabby	Digestive, respiratory, nervous systems; leucocytes, hemoglobin	"
Dentition	No teeth (rudiments of both sets in jaw)	2 teeth	6–8 teeth
Nerves	Total number of cells but development incomplete	Easily exhausted; peripheral nerves sensitive; sensory and motor centers developing	As first six months; spinal and brain associations connecting
Sense development	No hearing; sight only for light and darkness; touch vague; sensitiveness to temperature	Hearing begins; eyes begin to converge and work together	Color sense, sound, rhythm developing
Special organs or systems at developmental stage, needing much immediate exercise	Lungs	Muscles of arms, legs, trunk, hand; lungs	As first 6 months; muscles of creeping, hand, speech organs
Defects easily acquired	Eyestrain; blindness	Bones misshaped; eyestrain; nerves; disposition	As first six months
Defects easily overcome	Phimosis	Bones; temperament; phimosis; tongue-tie, harelip	"
Illness most susceptible	Cold, pneumonia, jaundice, inflammation of navel	Digestive, pulmonary; rickets; nervous disorders, erysipelas	"
Most common immediate causes of death[1]	Congenital debility; syphilis; prematurity, accidents	Congenital debility, digestive disturbances, pneumonia, whooping cough, bronchitis, convulsions, measles, meningitis	"

(1)

---

[1] Based on U. S. Census Report for 1913; causes arranged in decreasing rank.

(Page 54)

Nature and rate of mentality	Vague, indefinite, slow, groping	Slow, vague, diffused	More definite, alert, quickened
Motor activities	Chiefly reflex	Grasping, waving arms, hands; kicking; few vocal sounds	Sitting, creeping, standing, prattle
Sense activity	Slight, vague	Touch, sight, hearing, becoming active	Sight, touch, hearing, active
Attention	None	Begins in staring, handling	Listening, examining
Perception	"	Dimly begins	Vague
Curiosity	"	Begins, vague	Objects in reach, opening doors, pulling; exploring cupboards
Imitation	"	Of moods and vocal sounds of adults	Mechanical, of vocal sounds, moods, facial expression
Memory	Slight	Faint, vague; motor	For familiar acts and faces, responses to his crying
Imagination	None	Glimmerings	Glimmerings
Reasoning	"	Dawning, by association	By association, increasing
Social instincts	"	Egoistic, strong; trustful, responsive to care	Trust, desire for companionship of adults
Sense of law	"	Vaguely sensed, as association of cause and effect; and in rhythm of regular regimen	Developed through regular regimen and beginnings of obedience, especially to direct commands
Emotions	Slight, vague	Fear, sympathy, confidence, satisfaction, anger	Control weak but susceptible to training
Sense of humor	None	None; smiling begins	Shown in surprise, plays, laughing
Will	"	Temperamental expression	Persistent; shown in temper
Religion (1a)	"	Begins in trust, dependence	Human sympathy, confidence, obedience

The tables of physical characteristics are based upon the work of Vierordt, Uffelmann, Schmid-Monnard, Pfaundler and Schlossmann, Holt, Kerley; the tables of mental characteristics upon the studies of G. Stanley Hall, John Dewey, Earl Barnes, and their disciples, and the summaries of Kirkpatrick, Tanner, Taylor, Tracy. The author's personal experience with children, as a medium for developing these data into a composite grouping, has been supplemented by the criticisms and suggestions of individual physicians, biologists, and psychologists. The subject deserves much additional research in the comparative study of children.

(*Page 55*)

PHYSICAL AND MENTAL GROWTH AND DEVELOPMENT — *Continued*

PHYSICAL CHARACTERISTICS	SECOND YEAR	THIRD YEAR	FOURTH YEAR
Organs rapidly growing	Brain, teeth, muscles, bones, viscera	Trunk, brain, teeth	Upper arm, thigh; brain still increasing; bones
Organs proportionately large	Intestines, liver, kidneys, arteries, head, surface	As second year	As second year
Organs proportionately small	Legs, lungs, heart	"	Lungs, legs, heart
Organs proportionately strong in function		Heart, fundamental muscles	As third year
Organs proportionately weak in function	As first year	Eyes, hands, fingers, legs, nerves, digestive, respiratory	As third year
Dentition	6 teeth cut	Completion of first set	
Nerves	Motor coördinations developing, association centers developing	Sensory-motor coördinations forming	Sensory keen; motor coördinations rapidly developing (fundamental)
Sense development	Hearing discriminate; touch becoming keen, sight definite, focused	Touch, muscular, sight, sound; increasing discrimination	Increasing keenness, discrimination
Special organs or systems at developmental stage, needing much immediate exercise	Muscles of walking, forearm, hand; speech, sight, touch, hearing; teeth	Trunk, back, arms, legs, hands, speech, senses, teeth, respiratory	Arms, legs, trunk; sensory-motor coördinations; sensory nerves; teeth; lungs
Defects easily acquired	Bones; teeth, speech, nerves, disposition	Bones, teeth, speech, nerves	Eyes, bones, speech, nerves, teeth
Defects easily overcome	Bones; cleft palate, temperament	" " " eyes	Eyes, bones, speech, teeth
Illness most susceptible to	Digestive, respiratory; ears, throat, nerves; scurvy, rickets	Digestive, respiratory; ears, throat, infectious fevers	Digestive, respiratory; measles, scarlet fever, whooping cough, colds
Most common immediate causes of death	Digestive disturbances, croup, pneumonia, diphtheria, bronchitis, tuberculosis, measles, meningitis	Period of low death rate; pneumonia, tuberculosis, croup, diphtheria, meningitis, scarlet fever	Low death rate Pneumonia, diphtheria, croup, tuberculosis, meningitis

Nature and rate of mentality	Gaining in definiteness, slow	Impulsive, flitting, slow	Active, slow
Motor activities	Alertness, but inefficient Runs, throws	Increasing coördination of legs, arms, eye, and hand	Quiet games preferred to active; dawdling; spontaneous
Sense activity	Keen, especially touch Acquiring discrimination	Handling, listening; sight, touch, sound discrimination	At best, most active
Attention	Increasing	Flitting, concentration increased in doing	Voluntary — weak Involuntary — strong
Perception	Gaining clearness, definiteness	Still vague, but becoming definite	Still vague, improving
Curiosity	Insatiable; objects in environment	Varied; names; animals; mechanical processes	Insatiable
Imitation	Constant, of adult actions, voice	Adult actions, speech, moods	Chiefly adult occupations, less impulsive; literal
Memory	For names of things; emotions, simple movements	Verbal and motor good; emotions	Verbal, motor and emotional strong
Imagination	Slightly increasing	Concrete, vivid	Auditory and motor images more distinct than visual; concrete
Construction	Building	Persistent, for motor activity	For activity, immediate use
Reasoning	By association of experiences	By association of experiences	By association; ludicrous inferences; guessing period
Social instincts	Increasing sense of ownership	Social dependence on an adult; slight play with other children	Self-assertive; selfish; quarrels over property
Sense of law	Discerned in regularity of régime: in commands, rewards, punishments	Dim: susceptible to training; sense of ownership developing	Disorderliness; imaginative tales taken for lying
Emotions	Trust, fear, anger	Love, fear, anger easily stirred; little control	Easily aroused, keen; pity begins; imaginary fears
Sense of humor	In surprises, in tumbles	In grotesque situations, being caught, hiding	Persistent; crude; in grotesque
Will	Vacillating, temperamental	Little control	Unreasonable; persistent
Religion (2a)	Respect for parents, trust Obedience to parents	Obedience, trust, respect for authority	Animistic; invests inanimate things with life

PHYSICAL AND MENTAL GROWTH AND DEVELOPMENT — *Continued*

PHYSICAL CHARACTERISTICS	FIFTH YEAR	SIXTH YEAR	LATER CHILDHOOD 6–9 years
Organs rapidly growing	See 4th year	Legs, arms, chest girth	Motor cells in brain Period of slower physical growth; cessation of rapid brain growth
Organs proportionately large	Surface, intestines, kidneys, arteries	As 5th year	Digestive system, liver, kidneys, surface, legs
Organs proportionally small	As 4th year	As 4th year	Trunk, heart, lungs
Organs proportionately strong in function	Digestive and respiratory ability increasing	Digestive and respiratory ability increasing	Leg muscles
Organs proportionally weak in function	Accessory muscles and nerves; eyes, fingers, throat	As 5th year	Heart; low blood pressure; teeth
Dentition		Sheds some first teeth	2nd dentition
Nerves	Association fibres rapidly developing; see 4th year	As 5th year	Rapid growth of association fibres in brain; easily fatigued in 8th year
Sense Development	Keen development	Senses correlated; finer discrimination	Eyes developed for finer work
Special organs or systems at developmental stage, needing much immediate exercise	As 4th year	As 4th year	Muscles of arms, legs, trunk Muscles of forearm, 8 years Muscles of fingers, 9–10 years
Defects easily acquired	"	"	Spinal curvature, defective teeth speech disorders, eyestrain
Defects easily overcome	"	"	Speech disorders
Illness most susceptible	Digestive, respiratory, ears, diphtheria, rheumatism, measles, scarlet fever	As fifth year	Infectious diseases, rheumatism, nervousness, anemia, digestive disturbances; illness increases 8th year
Most common immediate causes of death	Period of low death rate As 4th year	Period of low death rate As 4th year	Low mortality; pneumonia, tuberculosis, diphtheria, croup, measles, kidney and heart disease

Nature and rate of mentality	Steadier, quicker, more alert	More definite, alert, quicker	Hesitating, impulsive, restless
Motor activities	Increasing coördinations, rhythmic movements, skipping	Increasing correlation Steadier action, marching, dancing	Finger movements stronger, more precise; actions not well coördinated
Sense activity	Finer discriminations; notices sound, color	Improvising on piano; eagerness to color; tasting	Senses become practically perfected; sensory interest weaker
Attention	Voluntary-weak; involuntary-strong	Purposive inattention; keener concentration in play	Flitting; lack of endurance, application
Perception	Clearer, many groups	Clearer	Truer to realities, more distinct; differentiates between real and imagined
Curiosity	Intense (see 4th year)	Physical properties; processes; causes; birth	Asks "What is it for?" Wider range of interests
Imitation	Dramatic, of adult activities, animals; literal	Dramatic; adults' activities, animals; less literal	Decreasing, imitates idea rather than action
Memory	Verbal, strong; learns nonsense, poetry	Verbal, strong; poetry, stories; motor, emotional, strong	Literal, increasing in ability
Imagination	Strong visual, lives in imagination; invents stories	As 5th year; fanciful tales of personal experience	Less fanciful; related more to facts and needs of life
Construction	Follows idea; for activity, use, æsthetic interest	Things for use; æsthetic interest	Begins to be creative; interest begins in finish, workmanship
Reasoning	See 4th year, reasons by analogy; attempts arguing	As 5th year	Little use for explanations or logic
Social instincts	Prefers child to adult; love of emulation; selfish; ownership	Self-sufficiency; homesickness; begins group play	Group play, circle games; slight respect for property rights
Sense of law	No sense of property rights; disobedience increases	As 5th year Increasing; rigid, literal	Expects to be held to law and consequences; respects power that requires obedience
Emotions	See 4th year; jealousy; fears animals; imaginary fears	Degree of control	Increasing control, reserve
Sense of humor	See 4th year Drawings, practical jokes	As 5th year Silliness	Incongruities of action; play on words; disasters
Will	Increasing force	As 5th year	Vacillating
Religion (3a)	Wonder in nature; reverence; prayer; obedience	As 5th year; imitative interest in formal worship	Period of ceremony, forms, rites Animistic tendency weakening

PHYSICAL AND MENTAL GROWTH AND DEVELOPMENT — *Continued*

PHYSICAL CHARACTERISTICS	YOUTH Girls, 9–12 years Boys, 9–13 years	EARLY ADOLESCENCE Girls 12–16 years Boys 13–18 years
Height	Slow growth; girls more rapid than boys	Rapid increase (Girls, 11–14) (Boys, 13–17)
Weight	Slow growth	Rapid increase " "
Organs rapidly growing	Legs, arms	Trunk, legs, arms, lungs, reproductive organs, heart, liver, kidneys; proportions changing
Organs proportionately large	Arteries	Hands, feet, arms, legs
Organs proportionately small	Heart, trunk	Trunk, internal organs, arteries
Organs proportionately strong in function	Muscles, legs, eyes	Heart, lungs; blood pressure high; muscles, fundamental and accessory
Organs proportionately weak in function	Heart, lungs; blood pressure; elimination	Nerves; internal organs, elimination; motor coördinations because of change in bodily proportions
Dentition	Complete (except wisdom teeth)	
Nerves	Reactions vigorous	Under strain; easily unbalanced
Sense development	Complete, including eyes	Senses keen
Special organs or systems at developmental stage, needing much immediate exercise	Muscles of trunk, forearm, fingers; motor adjustments; lungs	Muscles of trunk, arms, legs, fingers; lungs
Defects easily acquired	Spinal curvature, eyestrain; precocious sex development	Of reproductive system; shallow breathing
Defects easily overcome	Bones, teeth	Bones, lung capacity
Illness most susceptible	Anemia, rheumatism, heart weakness, nervousness; period of low morbidity	Anemia, nervousness, malnutrition; tuberculosis (girls); increased morbidity
Most common immediate causes of death	Period of low mortality Pneumonia, tuberculosis, diphtheria and croup, heart and kidney diseases, accidental drownings	Pneumonia, tuberculosis, kidney and heart disease, accidental drownings

Nature and rate of mentality	Direct, alert; more orderly, controlled	Well coördinated, more abstract, logical, comprehensive; routine irksome
Motor activities	Well coördinated; need much exercise; new adjustments readily made	Muscular awkwardness during growth
Sense activity	Sure, acute, subordinate to thought	Acute; all senses
Attention	Voluntary increasing	Potential voluntary attention strong
Perception	Clearer	Clear
Curiosity	Less keen	Wide range; persistent; craving for larger experience
Imitation	Less marked; of idea rather than action	Of ideals, strong; originality marked; individuality
Memory	Quick, sure, lasting; period of rote learning	At best; logical
Imagination	Clear, creative	Vivid, comprehensive, creative; works for remote ends
Construction	Constructs for purpose; interest in workmanship, skill	Interest in technique, use, æsthetic qualities
Reasoning	Immature; by analogy or suggestion; logic premature	Logical, abstract; mental speculation
Social instincts	Less sympathy with adults, more with companions; competition increases	Strong sympathies; group loyalty; altruism; sex instincts developing
Sense of law	Increasing through games; contempt for artificial laws, customs; less submissive to authority	Conscience keen; marked lawlessness or law abiding; restive of restraint
Emotions	Weaker; fears increase; sex consciousness developing	Keen, subjective, whimsical; shyness and bashfulness; romantic love develops
Sense of humor	Keen, expressed in teasing, practical jokes, puns	Strong; riddles, puns
Will	Self-will increasing; tendency to vacillation, inertia	Self-will strong; potential will power
Religion	Conscience weak; reverence weak; religious indifference; formal interest in religious ceremonies, forms	Deep religious feeling or irreverence Idealism; mysticism; altruism Conversion period

CHAPTER VI

PREPARING FOR THE BABY

"If I were asked what I considered the chief requisite for the successful practice of pediatrics I would answer: The education of the mother. It is impossible to do even fairly good work in diseases of children without proper home coöperation. A direction is never followed out so well as when it is understood."

— DOCTOR CHARLES G. KERLEY.

"Is it not monstrous that the fate of a new generation should be left to the chances of unreasoning custom, impulse, fancy — joined with the suggestions of ignorant nurses and the prejudiced counsel of grandmothers?

"To tens of thousands that are killed, add hundreds of thousands that survive with feeble constitutions, and millions that grow up with constitutions not so strong as they should be; and you will have some idea of the curse inflicted on their offspring by parents ignorant of the laws of life."

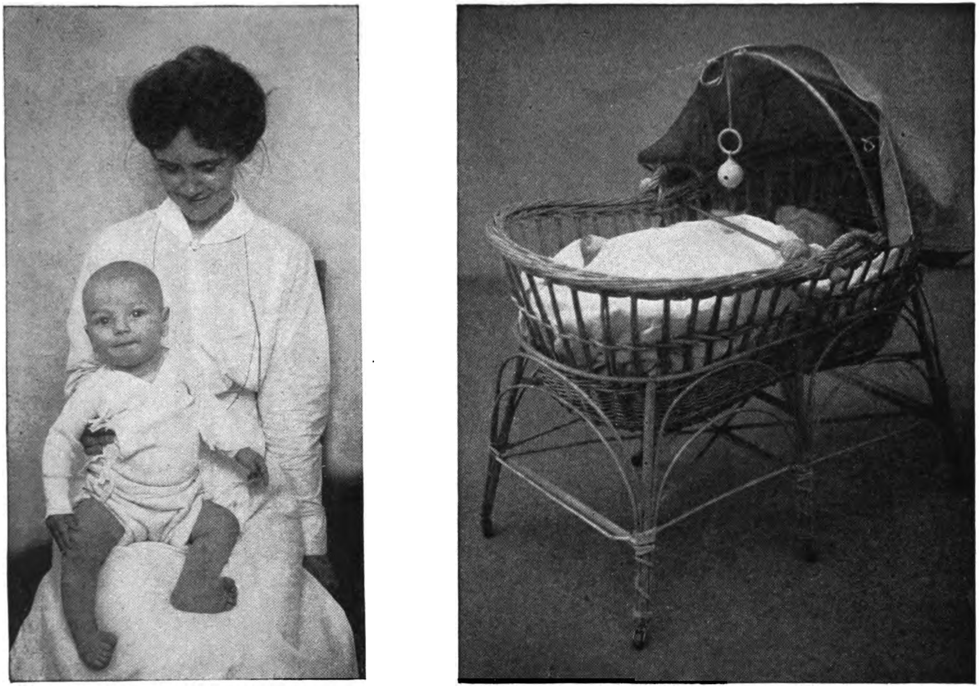
— HERBERT SPENCER.

"Even the ordinary workman needs an acquaintance with the nature of his work before an employer will put a task into his hands. But for the right care of children no training in the mothers, nurses, or teachers has been considered essential. Consequently the standard exacted among such persons, instead of being very high, is very low."

— DOCTOR NATHAN OPPENHEIM.

Prenatal Hygiene. If any baby could supervise the preparation for his own coming, he would not wait until the last few months before his advent, that is, any baby who had even moderate ambition for his comfort, his happiness, and his efficiency.

He would begin by selecting his grandparents, who would be high-minded, religious, abstainers, moderate



Approved Baby Clothing and Bassinet.

Diaper fastening at sides. Bassinet allowing ventilation, with green detachable hood to protect eyes from strong light, and with rod to grasp.

in all their habits, industrious, neither wealthy nor poverty-stricken, and who would bring up his father and his mother as members of a family of children in the same spirit and with foresight for his welfare. He would direct, during their childhood and adolescence, the physical régime of his father and mother, which would be simple, natural, regular, chiefly in the open air, with habitual deep breathing and, especially for his mother, exercises and clothing that would develop the most efficient digestion, breathing capacity, back and trunk muscles, steady nerves, reserve vitality. He would guide their education, which would include a minimum of traditional junk, parrotlike mimicry and discipline, and a maximum of real experience, valuable information, and æsthetic appreciation acquired through personal exploring, experimenting, judging, creating, with a discipline that developed self-direction, self-control, and self-reliance.

He would anticipate that his mother and father, with such a heredity and education, would be high-minded above dissipation and triflings, sensible beyond unhygienic habits in food and in dress, well-poised and superior to pettiness and discords, with a radiant love that maintained an atmosphere of joyousness, graciousness, courage. Having chosen each other because they loved each other, his father and mother would live and work and plan because they loved him. Before they invited him to come, they would have a comfortable home settled, so his mother could give her chief attention to him and be free to live much out-of-doors; they would consult their physician and bring themselves to their best vitality, so he might have the best physical constitution; and they would make any necessary sacrifice of their own desires that he might be undisturbed and thus grow steadily and sturdily until his birthday.

Physical motherhood is a natural, normal biological process. Under a natural, rational régime it should be a happy experience with a minimum of discomfort. The essentials, in brief, of such a régime are:

1. Thorough elimination of the increased amount of waste products, through the skin, lungs, kidneys, and intestines.
2. Strong, flexible trunk muscles.
3. Avoidance of fatigue, undue excitement, unhappiness, muscular strain; continence.
4. Simple, nourishing diet, carefully balanced, antitoxic, rich in minerals, moderate in quantity, with a moderate amount of liquid.

The mother should of course be under the physician's direction and observation during the entire period.

Clothing. The essentials are freedom and warmth. Maternity clothing need not be slovenly nor too obviously negligée. Elaborateness may better be expressed in the maternity clothes than upon the baby clothes. For dresses and coats a design with fullness at the sides, in the waist and skirt, with revers, and a high waist line, is especially good. The materials should be plain, or with a small, unobtrusive design. Clothing should be ample enough to encourage rather than prevent a slight perspiration, thus facilitating the elimination of waste.

The weight of the clothing should come from the shoulders. This is important in order to prevent any downward pressure upon the internal organs, as well as to allow for much deep breathing. It is possible by having a one-piece union suit, a brassiere for attachment of hose supporters, a combination corset cover and petticoat, and a one-piece dress.

All the clothing should be comfortably loose, especially any neckbands, sleeves, gloves, which may well be a size larger, as there is a slight swelling during this time. No round garters should be worn, as these impede the circulation in the legs and increase the possibility of varicose veins. The ankles should be well protected, because the blood vessels here are very near the surface and easily chilled, and as the blood returns from the legs to the trunk and internal organs, internal congestion might result from chilling of the lower extremities. Shoes should have *low heels* to prevent falling and rubber heels to minimize jars.

The corset is a moot question. The woman who has not been accustomed to wearing one is most fortunate now, for she has been developing and training the muscles of the back and trunk, which should be strong and flexible, equal to the special demands made upon them during the last four months and at the birth. If corsets have been the custom, it would be most advisable to discard them three or six months before motherhood is begun, and to give a systematic course of training to these muscles. Some physicians require their patients to discard corsets during this time. Their only possible value is to support the back and the bust, not as support for the abdomen. They may be harmful by crowding the internal organs, pressing any organs out of place, interfering with the fullest deep breathing and internal circulation, keeping the trunk muscles flabby and weak, compressing the breasts; and thereby causing more discomfort to the mother, depriving the baby of sufficient oxygen, making the birth longer and more difficult, and hindering nursing ability. A brassiere or comfortably fitted muslin waist is an adequate bust supporter; or a knitted breast binder is procurable which should be applied loosely enough to cause no compression, which hinders the development of the nursing glands. After the fourth month, the baby rises from the pelvis to the abdomen and the waist increases in size. Ordinary corsets then become especially dangerous. If for any reason a corset is then worn, it should be a special maternity style, such as the Ferris maternity waist. During the last month or two, it is advisable to discard even this corset, and if any support is necessary, to wear an abdominal supporting band, a knitted, shaped band being especially comfortable.

Food. The careful regulation of the diet and food-taking has vastly much to do with the comfort of the mother and the sturdiness of the baby. All the nourishment that the baby receives is derived from the substances that the mother takes in food and drink, which are digested in her system and conveyed from her circulation to his. It is a mistaken idea that the mother is " eating for two " and needs to increase the quantity. No increase in her normal requirement for protein or fat is considered either needed or desirable during the entire nine months, or any increase in carbohydrates until the last three months. The system cannot use the excess, which thereby only makes a greater tax upon the organs of elimination or clogs the system with poisons and overcrowds the abdominal organs. Abundance of mineral, especially lime, phosphorus, iron, and soda is essential. During the last three months there is an increase of about one fifth in the energy requirements, which is best met by an increase in the carbohydrates not to exceed this proportion. The following table gives the average dietetic needs of women:

Sleeping	0.4	Calories per hour per pound body weight
Sitting quietly (at meals, reading, etc.)	0.6	" " " " " " "
At light muscular exercise (dressing, standing, walking)	0.8	" " " " " " "
At active muscular exercise	1.4	" " " " " " "

For example, for a woman weighing 125 pounds:

			Calories
10 hours	resting	0.4 × 125 × 10	500
5 "	sitting	0.6 × 125 × 5	375
5 "	light exercise	0.8 × 125 × 5	500
4 "	active exercise	1.4 × 125 × 4	700
	Total for day		2075

Protein	10% – 15%	207 – 311
Fats	25% – 35%	519 – 539
Carbohydrate	50% – 60%	1037 – 1245

There is only a fraction of an ounce daily increase in the weight of the baby. A baby weighing 6½ to 7½ pounds at birth is more natural and easier for the mother than a heavy, fat baby, which is produced by overeating, overdrinking, and insufficient exercise.

The toxin-free diet, the quantity at one meal, and the time of meals are matters for careful consideration. During this period there is an increased production of waste, poisonous substances, and gases; at the same time there is often an increased tendency toward constipation. Auto-intoxication consequently results, causing much discomfort from nausea, headaches, dizziness, melancholia, nervousness, irritability. Special care should therefore be taken to select a diet (1) chiefly free from purins, (2) and from stimulants, (3) higher in base-forming than acid-forming elements, (4) with high mineral content, especially lime, and (5) laxative. This is done by omitting, or using very sparingly, meats, coffee, tea, pastry, fried foods, irritating condiments, vinegar; and by including milk, buttermilk made with the Bulgarian tablets, cheese, eggs, nuts, whole-wheat bread, bran bread, green vegetables, salads, fresh and dried fruits, fruit juices, butter, olive oil. Any food that is difficult of digestion, or that produces fermentation or gas, should be omitted.[1]

Enough water should be taken to carry off waste products but not to unduly increase the body fluids or cause flabbiness of tissues. With the diet recommended, less water drinking will be necessary than otherwise, six glasses a day probably being quite ample. This should be taken at intervals, not more than a small glass at one time, and not less than half an hour from meal times; fruit juices or milk may be taken instead of plain water.

---

[1] See Chapter IX.

Alcohol, even in dilute quantities, is highly injurious to the delicate nerve cells of the body, and should be avoided, particularly during this and the nursing period. Patent medicines usually contain alcohol.

With a well regulated diet, there is less probability of cravings for unusual or abnormal foods; such cravings may be pampered if for wholesome foods; if absurd or abnormal, they should be ignored.

During the last four months, and especially the last two, it is better to take the food in five meals than in three meals. There is less room in the trunk for the stomach to expand in the movements of digestion, and it may easily crowd uncomfortably upon the heart. The heaviest meal should be taken in the middle of the day, and a light supper two or three hours before bedtime, for adequate digestion and comfortable sleep. During the last month, the daily diet may well include one or two pints of milk in some form, because of its ease in digestion.

Bathing. A daily bath is especially important during this period, because there is so much waste and poison to be eliminated. If the pores of the skin are not kept clean and open, the kidneys (the work of which is now much increased) will be overtaxed, or some of the poison will remain in the system, causing headaches, nausea, and other discomforts. Very cold or very hot baths are equally to be avoided. The latter may cause a miscarriage, especially during the first three months. A woman who is accustomed to a daily cold bath may continue this as long as there is a good reaction. Surf bathing is inadvisable because of the low temperature and the muscular strain; bathing in quiet waters is quite safe. The daily bath should be warm enough for cleansing (90°–98° F.), followed by a cool sponge or spray for tonic. A salt bath (one quart of sea or coarse salt dissolved in a tub of water) is a good tonic. Two baths daily are permissible, not remaining in the water more than ten minutes. A vigorous rub with bath mitts, a Turkish towel, or coarse ~~damp salt,~~ is a further aid to skin elimination. Vaginal douches should never be used except on the advice of the physician. For sleeplessness, nervousness, congestion of blood in the head, the neutral (96° F.) sitz bath combined with a hot foot bath will promote the necessary equalizing of the circulation.

Exercise. Exercise now has two important purposes: the elimination of waste, and the strengthening of back and abdominal muscles. The precautions are avoidance of fatigue and of sudden or severe strain upon the abdominal muscles that might produce a miscarriage. During the first three months, the placental attachment is relatively insecure and therefore more easily detached. The certainty of motherhood cannot be established until the third or fourth month, although some presumptive symptoms are manifested earlier. The woman who has left motherhood to chance, and who therefore is not preparing for necessary care during these earlier months, is the more liable to a miscarriage through disregard of due precautions.

The ideal for this period would be complete outdoor living, with two miles of walking each day and plenty of light exercise that could be dropped at the approach of fatigue. Such a gypsy-like experience is often removed from usual living conditions. With a little planning, it could often be approached, however. The investment in such a vacation would yield far richer returns to the baby than an expensive layette, to say nothing of the increased comfort, ease, and happiness of the mother. The extreme antithesis of this ideal would be continuous indoor life with no work to occupy muscles and mind.

The individual mother must plan her environment and her work as nearly as possible to the ideal. Living in the country with good roads has the advantage of outdoors. An outdoor sleeping porch is much to be desired. For indoor sleeping or working, the room should be thoroughly ventilated with a constant current of fresh outdoor air, with the temperature not above 68° F. for working, and from 32° to 60° F. for sleeping. Extra clothing may be worn rather than to keep the windows closed.

A habit of deep breathing of outdoor air for about ten minutes on rising, at bedtime, and at several stated times during the day, will be wonderfully beneficial. The mother is now breathing for two, and the baby needs much oxygen.

Light household work is beneficial. Long standing, lifting, or pulling heavy weights, scrubbing on hands and knees, running up and downstairs, much stooping, working long over a hot stove, the use of a sewing-machine treadle or a washboard, are harmful. If the responsibility of the household work rests upon the mother, she must use her ingenuity to reduce it to its lowest terms of muscular energy.[1]

Walking is the best athletic exercise, two miles a day being desirable. It should be taken in easy stages, stopping to rest when tired, or a part of this distance taken at different times during the day. Golf, tennis, basketball, skating, horseback riding, bicycle riding, swimming, rowing, dancing, surf bathing, long rides over rough roads, involve the risk of overstrain, and should be omitted.

---

[1] See Chapter III.

Special Exercises. Clothing should always be very loose, especially around the waist, and the room should be well ventilated, for these exercises.

Breathing Exercises. These should be taken out of doors if possible; otherwise, at an open window. Breathing should be from the diaphragm. Repeat each exercise three to six times, or until fatigue begins.

1. Standing, hands on lowest margin of ribs, thumbs toward back, fingers few inches apart. Blow the breath out slowly, bending body forward at hips and pressing in gently with the hands to force out the air. Return slowly to upright position, breathing in through the nose gently to utmost capacity. Hold breath ten seconds and repeat exercise.

2. Stand erect. Take a deep breath, rising on balls of feet, extending arms out at side, shoulders high, hands clenched and describing small circles, as though boring. Hold ten seconds, then gently drop arms, blowing out the breath as long as possible.

3. Lying on the back, hold one nostril closed and breathe in slowly and deeply through the other. Hold the breath five or ten seconds, close the second nostril, and breathe out through the first. Repeat, breathing in through the first and holding the second closed; hold the breath, close the first, and breathe out through the second. This is a soothing exercise.

Trunk Exercises. Any one not accustomed to these exercises should consult the physician before beginning them during this period. All exercises should be done slowly, with no jerking movements.

For overcoming constipation, improving the tone, elasticity, and strength of the abdominal muscles.

1. Lie flat on the back, arms at the sides. Raise the right arm slowly, keeping it parallel with the body, describing a half circle until it rests on the bed or floor,

above the head. Repeat with the left arm. Bring each arm slowly back to position. (Figure 2.)

2. Same position. Raise the right foot, keeping the toes pointed forward, bending the knee until it touches the abdomen. Repeat with the left foot. May be repeated ten times or until fatigued. (Figure 1.)

3. Same position. Bend knees; draw the abdominal wall in and out slowly by muscular effort, without the assistance of deep breathing.

4. Same position. Lift the trunk from the floor, resting the weight on shoulders and hips.

5. Sit or stand, hands on hips. Twist the body slowly to the right and slowly return to position. Repeat, twisting to the left.

6. Walk up and down stairs moderately with a springing step, holding the body erect, shoulders straight, chest expanded, mouth closed, weight on balls of feet.

These simplest and easiest exercises may be continued throughout this period or may be commenced at any time.

The following exercises are more strenuous and should be used cautiously during the first three and last two months by those not accustomed to exercise. The physician should be consulted before using them during this time. They are profitably begun six months beforehand and are valuable for ordinary conditions of life.

7. Lie on the back, arms at sides. Raise both arms together, as in Exercise 1. Bring arms back slowly to sides.

8. Same position. Raise the right foot, toes pointed forward, knee straight till leg is at right angles with trunk; hold position ten seconds and lower foot slowly. Repeat with left foot. Raise both feet together. (Figure 2.)

9. Lying flat on back, hands on chest or clasped

behind head, feet held down under a chiffonier or by an attendant, come to sitting position without assistance of hands or elbows. (Figure 4.)

10. Lie on the back, grasp the rounds of the headboard and gently pull the body toward the head of the bed. Push with the feet against the footboard, or other non-resisting surface.

The knee-chest position is a most valuable exercise. It relieves the abdominal pressure, and therefore any swelling in the legs from such pressure, or any prolapsis of internal organs, bearing-down feelings, backache, disturbed pelvic circulation. It may be taken a few minutes at a time, several times a day. Sleeplessness will often be relieved by taking this position for a few minutes and then lying down. Kneel on the floor or other unyielding surface. Lay the side of the face down on this surface, with the shoulder of that side as near the knees as possible, keeping the upper leg from knee to hip at right angles with the floor. Weight may be supported on forearms placed at right angles to the body.

A good posture should always be maintained when sitting or standing; especially avoid letting the chest sink in. Whenever possible in sitting, especially after meals, elevate the feet, thus preventing varicose veins and swelling in the legs.

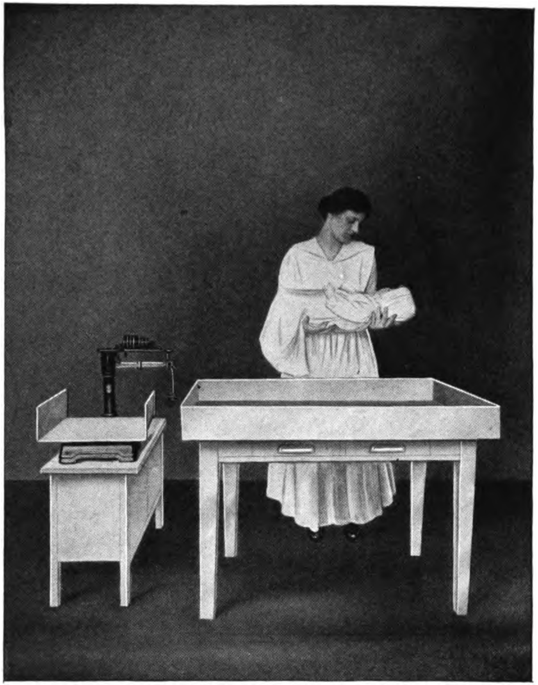
Sleep. Much sleep is needed. From eight to ten hours' sleep at night is essential, and a nap or rest in the afternoon, about an hour after the midday meal. By following the régime previously given, undisturbed sleep is likely to be the rule. The mother should sleep alone, and preferably in a room by herself. A little pillow under the small of the back is very comfortable, and during the last four months, an additional pillow under the shoulders.

Teeth, Hair, Eyes. The teeth should have been examined and put in good condition before the beginning of this period. During the entire time they should be brushed carefully after every meal, and the mouth rinsed with an alkaline wash, such as milk of magnesia or soda bicarbonate. The scalp should be massaged every day during the last two months and the two succeeding months, to prevent the hair falling out. The eyes should be examined three months after the birth.

Prenatal Influences. Life begins when the germ cells unite, and from that time the mother is the guardian of a living, though immature child. By the end of the third month the form and features are complete, though in miniature, the weight is about four ounces and the length about three inches. The study of development before birth is called embryology. So far as scientific research has been able to discover, there are no nerve cells connecting the nervous system of the mother with that of the child. Notwithstanding superstitions and folklore to the contrary, it is scientifically known that she cannot give her child a Greek nose by looking at classic pictures, an ape face through seeing some disagreeable sight, or musical genius by attending concerts. Anatomical form and mental traits are matters of heredity, as previously stated, and these factors are settled forever when the germ cells unite. The sex is also determined at that time, apparently depending upon the sex-determining factors in the germ cells. Hundreds of theories (such as the diet or the condition of the parents) have been suggested for influencing the sex of the child, but none of these is as yet proven true, and certainly no such influence can have any effect after the germ cells have united. " Birthmarks," such as red or blue spots, are probably due to some interference with the blood supply during development.

The mother is influencing the child during the entire nine months, through the blood supply. If she indulges in fear, anger, melancholy (dark emotions that develop

Approved Crib, Scales, Nursery Table.



Holding the Baby, Supporting Head and Back.

poison in the blood), if she over-eats, or takes alcohol, if she neglects deep breathing, daily bathing, elimination, exercise, she is impoverishing and poisoning the blood supply, and the quality of her child's bodily and mental characteristics will suffer. If she lives a wholesome life, following a régime that continuously eliminates poisons and gives abundant nourishment and oxygen, with the cultivation of peace, cheer, courage, joy (emotions that promote good circulation and a wholesome blood stream), she is providing good nourishment and enhancing the quality of her child's life.

It is for the comfort of the mother and for the welfare and beauty of the child that the mother should be sacredly reserved for her work during this and the nursing period.

A normal woman whose physical life through her childhood and adolescence has been well regulated should have an easy experience. A certain amount of discomfort and mental depression is to be accepted as a matter of course, but the greater care now given to physical hygiene would naturally increase health and vitality. Concerts, plays, lectures, and social gatherings (except where these would involve crowds and ill-ventilated, overheated rooms), reading, music, play, should all be part of her life during this time. The joy of anticipation gives the singing heart and makes this a time of beatitude, of weaving of dreams such as no other experience in life can give.

The preparation of the nursery and the baby clothes is part of the joyous experience. This may well begin early, that it may proceed leisurely, without sense of haste, and with its full measure of satisfaction. Simplicity, cleanliness, economy in care, daintiness, are the keynotes.

The Nursery. Room. It is desirable that the baby should have a room alone. If this is not possible, his room should be equipped for the nursery, and only the mother or nurse should sleep in the same room. Sunny exposure is essential. Second floor is preferable, for dryness, and freedom from cats and dogs. A covered, sunny veranda for outdoor sleeping is most desirable. The room should be ventilated from two sides, and preferably with open fireplace.

Floor. Washable, either painted, oiled or waxed, *never carpeted*. Small size washable rugs.

Walls. Washable, either painted or covered with Sanitas, at least to wainscot four feet high. Soft, plain, neutral tone; buff, warm gray or medium green.

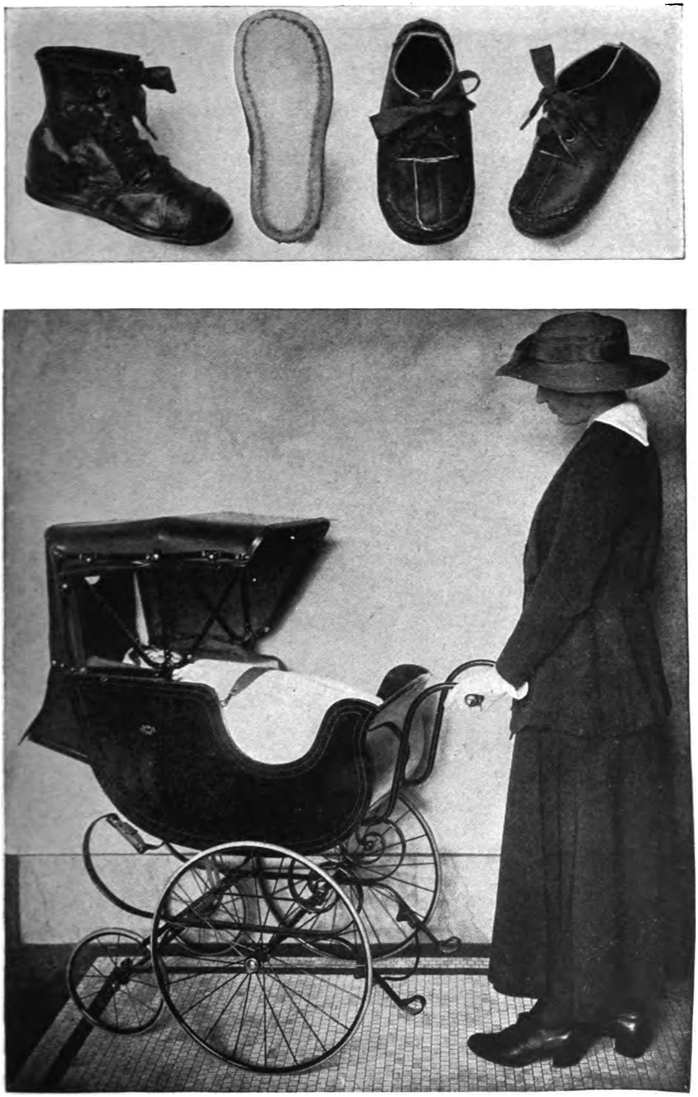
Curtains. Both light and dark shades; sheer, washable curtains, plain or figured scrim; no heavy window draperies or portières.

Heating. Preferably hot-water heater, with open fireplace for occasions. Steam and hot-air systems lack a sufficient amount of moisture, and are subject to sudden changes in temperature. Gas or kerosene stoves consume the oxygen and should not be used in the nursery. Coal stoves should be carefully watched to avoid poisonous gases from imperfect combustion, or sudden changes in temperature. Large open basins of fresh water should be kept in the room in winter, to supply humidity.

Lighting. A dim, shaded light for night use, lit only when needed. Nursery should be dark at night; daylight soft but not darkened, during first two weeks; ordinary lighting thereafter during waking hours, softened but not dark during daytime sleep.

Nursery Equipment

Chiffonier for clothes and toilet equipment
Low chair or rocker without arms
Basket or bassinet for first four or six months, with stand; high bassinet stands are now procurable



Approved Shoes and Baby Carriage.

Iron or brass crib, high sides, plain round tubing without ornamentation, *narrow* spaces between bars, one side to be lowered

High folding screen with detachable, washable covering for wings; a firm-standing clotheshorse four feet high answers also for a clothes rack; covering of muslin, cheesecloth, or china silk, attached with tapes when needed

Nursery table for dressing, with plain, round legs and a six-inch ledge securely screwed on; edges and corners of ledge preferably rounded. An ordinary kitchen table with drawer answers very well. A carpenter can make and attach the ledge.

One or two small low tables, with rounded legs, for bathtub and bath accessories

Folding tables economize space. Firm, round tables can be used later for the child's dining and play.

For bassinet: Four-fold cotton blanket or table felting as mattress; or 6-inch pad filled with clean silk floss, hair, straw, or chaff
3 absorbent pads, quilted or of table felting
4 to 6 sheets, cotton for summer, soft outing flannel (all cotton) for winter
1 or 2 knitted afghans, or blankets of eiderdown or three-quarter wool

For crib: Hair or silk floss mattress; for economy, clean straw may be used.
2 absorbent pads
4 to 6 sheets, cotton or outing flannel
1 or 2 knitted spreads, or eiderdown quilts or three-quarter wool blankets
1 or 2 piqué or dimity counterpanes

Papricloth nursery blankets, or lightweight rubber sheeting, to protect mattresses
2 pads of hair or straw ½ inch thick, 9 × 12 inches
3 to 6 cotton slips for pads
6 to 12 square or triangular pads, 12-inch size, quilted, stockinet, or table felting
1 rubber lap protector, detachable piqué or flannel slips

1 yard dark green sateen for bassinet canopy
2–3 yards cheesecloth, dimity, or china silk for one end and side of crib

50 yards cheesecloth, six to ten cents a yard, for diapers, face cloths
3 sizes of safety pins with safety fasteners
Nursery scales, common beam type, not spring type commonly sold for nursery, which are difficult to read and unreliable
Bathtub, enamel or tin most practicable. Rubber is soft and adaptable, but soon outgrown, and baby cannot kick or splash so well. After five or six months, the baby may be bathed in the large bathtub.
Room thermometer, Fahrenheit
Bath thermometer, Fahrenheit; red or blue indicator easier to read than mercury
1 or 2 small white enamel hand basins, one of these kept exclusively for diapering
1 largest size white enamel or agate bucket with cover, for diapers
1 2-quart pitcher
1 4-quart pitcher
1 3-ounce package lysol
1 pound boracic acid (powder)
1 pound powdered borax
Small hand scrub brush
Small hot-water bottle or thermophor
Smallest size china or enamel cuspidor
Nurse's apron with bib
Bath apron of knitted goods, stockinet, or heavy Turkish toweling
Light-weight detachable rubber sheeting apron to wear under bath and nursery aprons
6 wash cloths, 8-inch square, of soft old table linen, stockinet, knitted, or four-fold cheesecloth
2 largest size soft Turkish bath towels
2 medium, soft linen towels
2 soft face towels, of old table linen or toweling
Package tissue paper napkins

Wooden box with hinged cover, or enamel tray, for bath accessories, as follows:

- a. Baby's soft hairbrush
- b. Celluloid or ivory soap box with cover
- c. Small semi-blunt scissors
- d. 2 6-ounce glass jars with screw tops, to hold sterilized gauze and cotton
- e. Cake pure Castile or Palmolive soap
- f. 2-ounce bottle liquid albolene or sterilized olive oil
- g. 2-ounce bottle liquid vaseline
- h. 2-ounce bottle grain alcohol
- i. 2-ounce bottle saturated solution of boracic acid (made from powder)
- j. 2-ounce bottle 2% boracic acid
- k. Small box zinc ointment
- l. Small tube cold cream
- m. Shaker-top powder-box, with powder made of 1 ounce oxide of zinc, 1 ounce cornstarch or rice powder, 1 ounce boracic acid
- n. Small package absorbent cotton (kept in covered jar)
- o. Sterilized cheesecloth cut in 3-inch squares (kept in covered jar)[1]

Baby Carriage. High; not less than 14 inches wide, and 28 inches long, inside measurements; wood body preferable to reed or rattan (latter should be kept free from dust by frequent cleaning); detachable, washable covering to upholstery; good springs, brake, rubber tires; porous hood with lining dark green, brown, or gray to protect eyes (never white), ventilated by holes near top or by side curtains; ample drop for feet when baby is sitting up; reversible body or handles desirable.

Baby Pen. The nursery table or crib will answer until the sitting stage, at five or six months, and the crib until the creeping or climbing stage, at seven or nine months. A pen four to six feet square gives room for tumbling and creeping. It should have a wood bottom, preferably of slats loosely joined (for flexibility). Raised six inches above the floor, to escape drafts; sides made of slats or plain round rods 4 inches apart, 2½ feet high; edges rounded; clean detached quilt or table felting over floor. Sides may be hinged to fold away. A large packing box, sides padded, raised on 6-inch blocks, may be used for economy. The lightweight pens, resting on the floor, usually found in the shops, are drafty and inadvisable.

---

[1] See page 363.

Harmful Equipment. The following have no place in a baby welfare nursery:

All unsanitary germ holders, such as sponge, powder puff, basket trimmings, open or porous toilet basket, pacifier, veil.

Rubber or other waterproof diapers, because they are unavoidably heating and irritating; feathers, because too heating; linen sheets, which are cold and chilling.

Pinning bands or swaddling clothes, which prevent the activity so essential for growth.

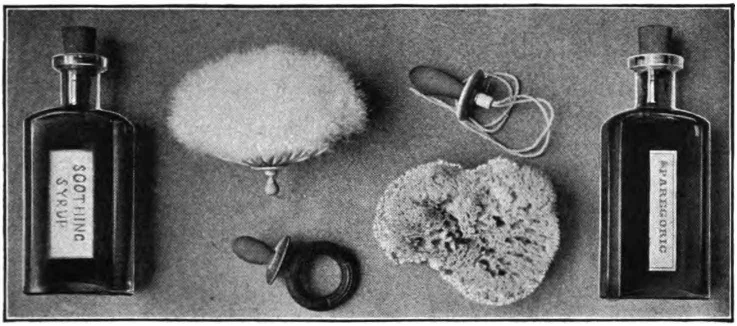
Cradles or rocking bassinets, which are injurious to the nerves.

Baby-walkers, because they keep the baby too long on his feet and legs when he needs the intermittent rest of lying down while learning to walk; they retard his confidence in walking alone, and are a cause of dangerous falls.

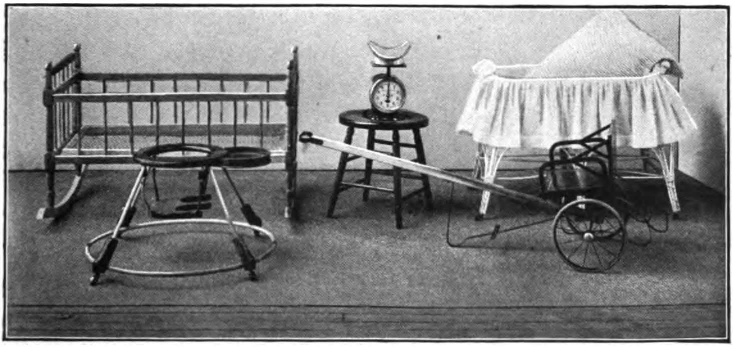
Low go-carts and sulkies, which keep the baby in the low strata of dust and germ-laden air, and which are frequently badly proportioned for good posture.

Soothing syrups, patent medicines, paregoric, whiskey, brandy; they are all poisonous.

Patent artificial foods; they are expensive and an inefficient makeshift.


SOOTHING SYRUP
PAREGORIC

Drugs and Unsanitary Appliances.



Unhygienic Equipment and Unsatisfactory Scales.

Clothing List for First Six Months.

Minimum	Moderate	
2	3	knitted binders with tapes to tie
2	4	knitted shirts. double-breasted, size 2
2	4	flannel Gertrude petticoats
1	2	nainsook Gertrude petticoats
2	4	dozen cheesecloth diapers, 1 yard square, sterilized
2	2	dozen stockinet or cotton bird's-eye diapers, 22-inch, sterilized
3	4	nightgowns: soft crepon, long cloth, nainsook, or Viyella flannel
3	6	plain slips: soft crêpe, crepon, long cloth, or nainsook
1	2	fine slips: nainsook, dimity, soft lawn, batiste, or linen
1	3	wrappers: cashmere, challie, flannel, or albatross
1	2	sacks: knitted, flannel, challie, or cashmere
1	1	kimono-sleeve wrap: cashmere, flannel, eiderdown, or broadcloth. Separate padded lining (cheesecloth or china silk) for cold weather
1	2	bonnets: nainsook, lawn, china silk, or silk knitted (open mesh) for summer. Flannel, broad cloth, cashmere, or loosely knitted for cool weather. Quilted detachable lining of cheesecloth or china silk for cold weather
	1	hood shawl: flannel, or cashmere
1	2	shawls: flannel or knitted
1	4	pair long hose: cotton for summer Merino for cool weather
1	2	pair bootees: porous, not heavy

Knitted binders are more elastic than flannel.

Cotton bird's-eye, or cheap outing flannel diapering is warmer and more absorbent than linen or canton flannel; stockinet is best.

Cotton material for slips, and lace or embroidery for trimmings, should be *very soft.*

Viyella flannel, which is half wool and non-shrinking, is most satisfactory; loosely woven flannel, half wool, with silk or cotton, is soft, shrinks little, and is warmer than heavy, close weaves.

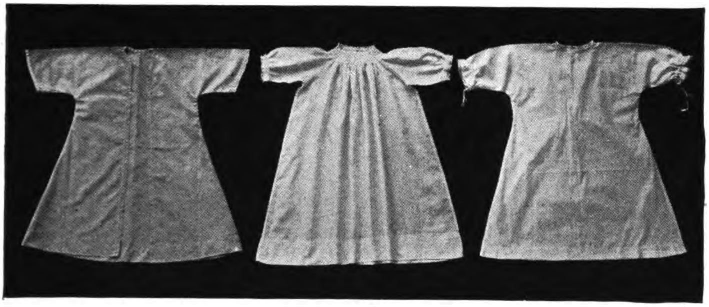
Outing or Shaker flannel is all cotton; the soft nap is highly inflammable.

Crêpe, crepon, and woolens, should be shrunk before making.

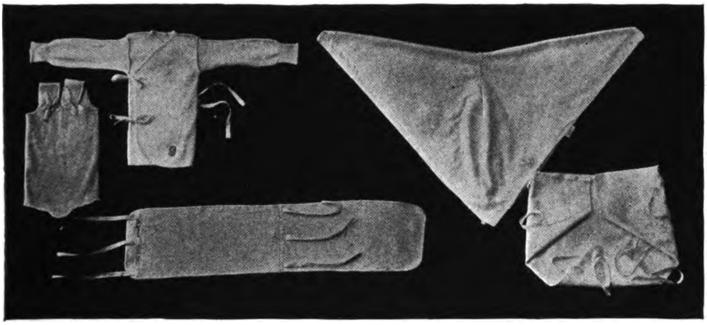
Knitted shawls, jackets, and quilts are warmer and lighter than woven fabrics; avoid colors unless guaranteed non-fading.

For the knitted (ready-made) shirts, some authorities prefer all cotton, others part wool. All wool is never advisable, as the baby's skin is very sensitive, and furthermore, all wool shrinks badly. For most babies, under average conditions, one-quarter wool, three-quarters cotton or silk is advised. In very warm weather, all cotton is better. In very cold climates, half or three-quarters wool may be advisable. Silk has no special advantage over cotton. Babies with very delicate skin, eczema, or any rash should never have wool next the skin. Some manufacturers now make part wool knitted underwear, having only the cotton thread next the skin, wool outside.

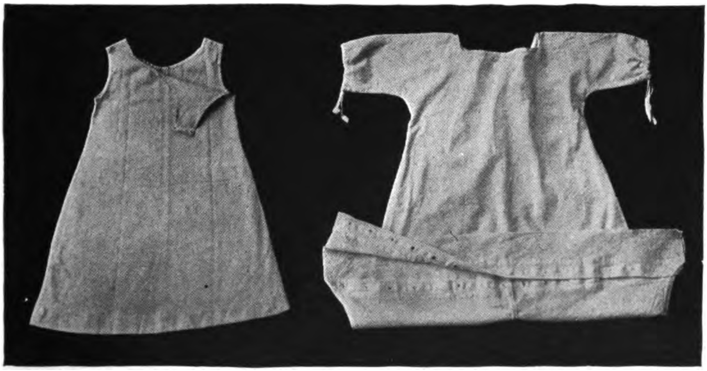
The binder is worn only two or three weeks, as a protector to the navel until it is healed. It should be fastened comfortably, *not tight.* With delicate babies or those out of doors in cold weather, a band with shoulder straps may be worn as a substitute during the first year, although this is unnecessary with a double-breasted shirt. The Vanta binders and shirts (double-



Kimono Coat, Raglan Sleeve Slip, Kimono Slip.



Knitted Shirt and Band. Shaped Diapers. Diaper Fastening with Tapes.



Gertrude Petticoat. Kimono Nightgown Fastening with Snaps.

For the Layette.

breasted), fastening with twistless tape instead of buttons, are especially satisfactory.

Making. Preparation of the baby clothes should be a joy and not a worry or burden. Let them be simple, moderate in quantity.

The kimono or raglan sleeve gowns, wrappers, and coats are much easier to put on and off than the set-in sleeve. By liberal measure under the shoulders, the sleeve will not pull out; a gathering string at the cuff for little babies will keep the hand from slipping out.

All seams should be flat.

Seams on woolen garments should be felled or edges featherstitched flat. Armhole and neck of flannel garments should be covered with soft seam-binding or turned back ¼ inch and raw edge stitched down or featherstitched; never turn under, as this makes a ridge. At hem of flannel petticoat, raw edge need not be turned in but may be featherstitched flat.

Sleeves may be turned back in a 2-inch hem for first months.

Edge of dress sleeves and neck may be finished with a ⅛-inch hem with featherstitching, or a narrow Armenian or val lace, or soft batiste embroidery, whipped on; or twistless tape or wash ribbon ¼ to ½ inch wide, may be run through facing or beading at neck and one or two inches from edge of sleeve.

Fine gathers or tucks may be made in the front and back of slips to form a yoke; these may be taken out later as the baby grows.

Beading, or buttonholed eyelets two inches apart, for wash ribbon sash, may be made in dresses, thus forming a yoke; leave garment loose two inches each side of under-arm seam.

Maximum length allowable for dresses and petticoats, 27 inches; minimum, 22 inches; hems, 1 to 3 inches.

Neckbands, 9½ inches at birth to 10 inches at 6 months.

Sleeve bands should be 8 to 12 inches long.

Average length of infant, neck to soles, at birth, is 16 inches; at 6 months, 24 inches.

Set-in sleeves, small cuffs, small neckband, tiny buttons, make dressing difficult. Gathering string of twistless tape or ribbon, with beading, at sleeves and neck, are recommended, or ample neckbands.

Kohinoor snappers are preferable to buttons, using care in laundering to prevent bending. If sewed on to linen tape, which can be used as a facing for material, there is less strain on goods.

Short Clothes. Clothes are usually shortened at four months in summer or six months in winter, keeping about the same models.

Rompers are convenient after creeping begins. The English use diaper drawers knitted of soft wool.

Leather moccasins, made after the Indian model, with *seams outside*, are the best footgear until the walking stage, at twelve to fifteen months.

CHAPTER VII

CARE OF THE BABY[1]

"Everything in after life depends upon uninterrupted healthy growth during infancy."

— DOCTOR F. TRUBY KING.

"There is no young creature in the world so ignorantly and cruelly nurtured as the average infant."

— *Ibid.*

"Since what is needed most is intelligent care, all proper means should be employed to educate mothers and those caring for infants, in proper methods of doing this."

— DOCTOR L. EMMETT HOLT.

THE baby is a unity of body, mind, and soul, and these cannot be separated in his actual life. During every minute of his care, in every detail, his whole nature is being influenced and his character shaped. It is only for convenience of discussion that the physical régime is separated from the rest of his care.

The régime here outlined is for normal, well babies, for their first year or two. Delicate, feeble, or sickly infants must receive special care, under the physician's directions, in their feeding, bathing, clothing, and outdoor living.

There are only a few fundamental principles, but these are to be practiced with conscientious thoroughness by every one who has anything to do with the child. It is the little details in the routine of his daily life that produce vigor or weakness. Errors in his care now easily cost his life; or apparently they may not harm him now but will be paid for in suffering, deformities, or weakness in childhood or adulthood. The woman who has this responsibility needs special preparation in self-sacrifice, self-control, gentleness, regularity, thoroughness, and accuracy in little details. She should be in good health, free from any contagious disease.

---

[1] See Preface, page xiii.

Fundamental Principles.

1. Regularity, particularly in feeding, sleep, stools
2. Cleanliness of baby, food, clothing, utensils, toys, nursery
3. Fresh air and sunshine, Nature's great disinfectants and vitalizers
4. Gradual, moderate changes in temperatures, clothing, food, régime
5. Quiet, because the brain and nervous system are yet incomplete in their development, and are very sensitive; the maximum of sleep, with little stimulation while awake. The brain grows as much during the first year as during all the rest of life.
6. Gentleness in handling, to prevent any curvature or misshaping of the soft bones, or shocks to the nerves
7. Moderate warmth, which avoids either chilling or coddling
8. Freedom of movement, for only thus can body and mind normally develop
9. Training in self-control, which can begin the first day and needs daily attention
10. Mothering, cuddling, fondling, regularly every day, *before* feeding, at bath or dressing times, an hour previous to bedtime
11. Holding and Lifting. The whole length of the spine and the weight of the head must be well supported until the baby is strong enough, at six or seven months of age, to support these himself. In lifting a young baby, the left hand and arm are slipped under the head, neck, and upper back, the right hand under the lower back. He may be carried in one arm by supporting the head in the crook of the elbow and sup-

porting the entire length of the back with the forearm, wrist, and hand. If held in an upright position at this early age, the wobbly head should always be supported. *Never* lift a baby or little child by his arms.

Daily Régime. The following schedule is in general typical for the first year. It will vary somewhat with the age of the baby, the climate and season. In varying from this schedule, note that the following factors are important and to be observed strictly:

1. Regularity in feeding
2. Interval of one hour after a feeding before bath
3. Interval of one hour between feeding and fruit juice
4. Interval of twenty to thirty minutes between feeding or water and urinating; this interval should be observed for the individual child, that the habit of control (and the saving of wet diapers) may be established as early as possible
5. Regular time for stools; by beginning the week after birth this can be early established, and much unnecessary work saved
6. Regular time for the bath, scheduled for midmorning or for evening, according to which time is found to agree best with the baby
7. Regular times for play, kicking, cuddling
8. Regular time for weighing, that conditions may be the same
9. Note that in cool weather the baby should not be put outdoors until one hour after the bath; and that an oil rub may be given instead of the cool sponge at night

A daily schedule card is of assistance in maintaining regularity, noting new developments or unusual conditions. It is advisable to record it at least once a week, on the day for the weekly weighing.

Typical Schedule

CONDITIONS. SEASON: *June* AGE OF BABY: *Four Months*

A.M.

5:30 Wakened; changed. (Some babies will sleep until 6:00, others will waken early, and should be changed but not fed; may be given water if they cry, and left to play in bed.)
6:00–6:15 Feeding
6:30 Urinated (cuspidor)
6:45–8:00 Slept
8:00 2 teaspoons water; stool (cuspidor) normal
8:00–8:30 Kicking in bassinet (or on nursery table); crying 10 minutes
8:30 Weighing, exercise, rub
8:40 Urinated (cuspidor)
8:40 Bath (temperature 98° F.); cool sponge (84° F.); dressed; crying 10 minutes
9:00–9:15 Feeding
9:30 Put outdoors; asleep
11:55 Wakened; changed
12:00–12:15 Feeding

P.M.

12:40 Urinated (cuspidor)
12:45 Put outdoors
1:00–2:00 Slept
2:00 Changed; 2 tablespoons prune juice
2:00–3:00 Kicking on nursery table (or in pen) in open air
3:00–3:15 Feeding
3:30 Urinated (cuspidor)
3:30–4:30 Put outdoors; slept; crying 10 minutes
4:30–5:30 Cuddled
5:00 2 teaspoons water
5:30 Urinated; stool (cuspidor) normal
5:45 Rub; sponge bath (90° F.); dressed for night
6:00–6:15 Feeding
6:30 In bassinet, asleep (Change if wet)
10:00 Changed
10:00 Feeding

Totals. Sleep: 17 hrs. Water: 3 T. Stools: 2. Crying: 30 minutes.

Clothing. The designs previously suggested for the baby clothes (page 83) are adapted to ease in dressing, laundering, making, and to freedom of movement. With these, the baby need be turned only once in dressing, or not at all, if the dress is fastened in front. Use only flat, protected safety pins, no common, straight, or ridged pins. With tapes and snappers, pins may be eliminated.

It is much easier and more comfortable to dress and change a baby on the nursery table than on a low bed or the lap.

The clothes should be put on and off over the feet, not over the head.

The clothing should be changed completely at the morning bath and at night. The day outfit is the same as the night during the first three months. Later the day slip is worn, as the baby is awake longer. The nightgown may be of Viyella flannel, the petticoat then being unnecessary, except with the temperature below 40°–50° F.

Overdressing, like overfeeding, is a common and serious mistake. If the baby's skin is moist to the touch, he is overwarmly dressed and thereby made highly susceptible to " colds " and pneumonia. If his feet are cold, skin " goose-fleshed", and lips blue, he needs more clothing. With a room temperature of 68°–70° F., duly humidified, a baby four months or over usually needs only a diaper, cotton or quarter-wool double-breasted shirt, flannel petticoat and cotton slip. The binder is needed only until the navel heals, — about three weeks. It should be loosely applied, fastened by tapes rather than by pins or sewing. If applied tightly or worn longer it hinders the development of the trunk muscles, interferes with digestion and breathing, and, contrary to superstition, will not prevent but may cause rupture. For babies under four months or with a room temperature below 68° F. a wrapper, sweater, or sack should be added. The cotton petticoat is only for ornamental purposes with fine slips.

On warm summer days (over 72° F.) he may dispense with the petticoat. In very hot weather, also, substitute a cotton, half-sleeve vest for the long-sleeved shirt, or after three months dispense with all but the diaper while awake, adding a cotton slip during naps, and a cotton shirt at night.

For outdoors, he should not be bundled until the minute before he departs. A thin cap of cotton, linen, or silk may be worn in warm weather (or none at all after three months) and a double one for winter, not thick enough to cause perspiration. For the first twelve months a kimono-sleeved coat, with drawstrings at shoulder and wrist, will provide protection, with the blankets, for cold weather. The nightgown pattern may be used to make a sleeping bag of eiderdown, broadcloth, or flannel. This allows much more freedom than the usual type of sleeping bag, and is better ventilated. The hood should be of lighter fabric, knitted or of flannel, broadcloth, cashmere; eiderdown or angora is overheating.

Stockings and booties ordinarily are not needed during the first year except when the baby is kicking and creeping about with a temperature below 68° F., or for appearance when he is taken out in arms. See that the feet are warm, but not hot or moist. Stockings are always coming off or getting wet from the diaper; they keep the feet perspiring, making them tender and increasing the possibility of colds. When worn, they should be of cotton, or in very cold weather, one quarter or one half wool; all wool are overheating and shrink badly. When the baby begins standing or creeping, the leather Indian moccasins may be used. Other baby shoes on the market have many faults, — tightness across toes and instep, seams turned inside, non-porous patent leather; slippery, stiff, or rough soles; they produce only discomfort at the time and are productive of callouses, corns, bunions, and misshaped feet. At twelve or fifteen months a heavier-soled Indian moccasin may be worn or sandals with flexible, corrugated soles, roomy at the toes, shaped like the foot, right and left, soft, porous (not. patent) leather, perfectly smooth inside, using gaiters or leggings with these for out-of-doors in damp or cold weather.

Diapering. Reduce the number of wet and soiled diapers by training.

Begin training at one week of age.

Hold a small (warmed) cuspidor firmly in the lap.

Hold the baby above this, the legs extended in the hands, back resting against the mother's chest.

Do this at regular time for stool, early morning or late afternoon.

The use of a suppository for a few days will assist; use a little roll of soft, clean paper dipped in liquid vaseline.

Note on daily record the interval between feeding or drinking, and urinating (20 to 30 minutes).

Hold the baby for urinating at these regular times when awake and before beginning the bath.

In a few months he will learn to control the bladder as well as the bowels for these times, when awake.

At eight or ten months the baby may be supported on the toilet seat, by using the baby's detachable toilet chair now manufactured. A nursery chair for this purpose is not advised. They are usually wrongly proportioned and constructed; and the child is usually left alone to sit for half an hour or more, thereby inducing local irritation, deferred action, prolapsis of the rectum through straining, or bad habits. The mother or nurse should always stay with the child, and the least possible time should be permitted.

Change the diaper as soon as the baby wakes or immediately, if it becomes wet while he is awake. (The urine is salty, sometimes acid, and always irritating.)

Before removing diaper, have at hand everything needed, viz.:

- Clean, dry, warm, folded diaper
- Diaper preferably folded oblong and fastened at the sides
- Diaper handbasin with warm water
- Special wash cloth and towel kept only for diapering
- Powder, zinc ointment
- Diaper bucket

Lay the baby on the nursery table, on a Turkish towel.

If pins are used, put into blanket at right hand, removed from baby's reach.

Remove the diaper and drop it into bucket.

Wash baby clean and pat dry, especially in creases.

Use powder very sparingly or not at all.

Use albolene or zinc ointment for chafed places.

Put on dry diaper.

Leave baby in safe position while putting away utensils.

Never use a diaper a second time without washing; the acid and salty urine deposit will cause chafing.

Avoid pulling tight about the waist; the pelvic bones are now only cartilage, easily misshaped; if pelvis is narrowed in girls, childbirth will be made more difficult for them.

Avoid tightness in front, especially for boys, as this will produce irritation.

Avoid much thickness between the legs; it will cause bow legs.

Never use rubber or other waterproof diapers; they are overheating and may cause bad habits.

A small pad of cotton batting folded into sterilized cheesecloth, or a double fold of Turkish toweling or stockinet placed in the diaper will absorb moisture and avoid the extra thickness of a heavy diaper; this pad may be burned if soiled.

A quilted or stockinet pad placed between the diaper and petticoat will prevent drenching of clothes while asleep.

If diaper is fastened to shirt, make sure of ample length; avoid any pull on shirt or diaper.

Throw water from basin into toilet or slop bucket, not into lavatory.

Wash out cloth, disposing of water in same way; or put cloth into diaper bucket.

If diaper is soiled, flush off in toilet before putting to soak.

Wash hands thoroughly in the special basin, with soap and water, after changing diaper.

If marked congestion of genitals, or a discharge appears, take special care to disinfect hands and burn cloths and diapers. Report the condition at once to the physician; these symptoms may indicate a serious disease.

Never let a child use a public toilet without placing paper or cloth over the seat; children's detachable seats may be purchased that can be carried in traveling.

Laundering. Baby clothes should be washed with a mild white soap, such as Ivory, and thoroughly rinsed. Diapers require special care. They should be thoroughly boiled and rinsed. Laundry soap, soda, or bluing should not be used, but Ivory soap, with borax or ammonia if necessary. Dry in sun if possible. Ironing is not necessary.

Boiling, outdoor sunshine, and pressing with a hot iron, are all sterilizing processes.

Starch is never to be used in baby clothes, which should always be soft and non-irritating.

For woolens, use warm water; add soap in solution, not rubbing on clothes; add one teaspoonful of borax or ammonia per gallon of water, if very soiled. Squeeze, or wash with vacuum washer; do not rub, but use hand brush on very soiled places. Squeeze or press without twisting. Rinse through two waters, same temperature as the first. A teaspoonful of glycerine per gallon of water, added to the last rinsing water, preserves softness.

Dry at once by moderate heat; avoid freezing or extreme heat. Stretch into shape, and lay on frames or towels to dry, turning once or twice. If pressing is desired, use a moderately hot iron. Cheesecloth between iron and fabric preserves softness.

Bathing.

One bath every day
Sponge bath until cord heals; later, tub bath
Not within an hour after feeding
Not when greatly fatigued
Tub bath preferably in morning, before second feeding; otherwise, before third or evening feeding

In warm weather an additional sponge bath at night (same as lower temperature of morning) is advisable.

In hot weather give two or three sponge baths 70° to 90° F., according to age, in addition.

In cold weather, an oil rub at night may be given instead of sponge[1] bath.

Temperature for bath is always to be regulated by bath thermometer. Changes to be gradual, by 1° F., from day to day.

Until sixth or eighth month, tub bath 98° to 100° F., followed by cool. Then reduce 1° a fortnight, to 90° F.

After second week, a dash of cool water (90° F.) applied by hand to back (begin at lower end), chest and buttocks. At two months lower by 2° F. and apply with wash cloth; lower 2° F. each month to 80° F., so long as baby reacts well — skin rosy and warm, not blue lips, goose flesh, cold feet.

---

[1] A "sponge bath" is given with a wash cloth; *sponges* are *never* to be used, because unsanitary.

Cool water may be added slowly while baby is in tub, but not hot water.

Giving the Bath. Before beginning to undress the baby, have everything ready, and just before undressing the baby, wash the hands thoroughly.

Costume: wash dress, sleeves to elbow, bib apron, bath apron.

Room: no drafts; temperature about 70° F. (65°–72°).

Equipment: Clean tub or basin filled with bath water; enamel, tin, or rubber tub may be used; after six months, large tub may be used. Heavy bath towel may be placed in bottom of tub.

Prepare tray with toilet articles and rolled gauze.[1]

Bath thermometer; supply of hot and cold water.

Fresh wash cloths for face and body, kept only for baby.

Soft face towel; two large bath towels spread on nursery table.

Laid out in order for dressing; dry, warm clothes, petticoat placed inside of dress; wrapper or shawl.

Allow fifteen to twenty minutes for undressing, exercises, bathing, dressing.

Allow five to ten minutes for rubbing and exercise.

Allow two to ten minutes for clearing away after bath.

Undress the baby on the nursery table; have a large, warm, Turkish towel under him; leave the diaper on, unpinned, until put into tub.

Rubbing. ½ minute to 2 minutes. Use only the hand until 9–12 months.

Hands warmed; anoint with cold cream or cocoa butter, if rough.

Give 2 to 6 long strokes, each arm and leg, beginning at extremity and rubbing towards heart;

---

[1] See page 79.

4 to 6 long stokes down back;

4 to 6 long stokes across chest;

4 to 6 long strokes on abdomen, gently, beginning at lower right, and ending at lower left;

2 to 4 strokes on ribs, from back to front.

Exercises. 3 to 10 minutes. (Begin at one month, see page 112.) Fill tub to depth covering abdomen of baby; note temperature with thermometer.

Wrap the towel around the baby and put on cuspidor to urinate. Keep towel around the baby until ready for the tub. Ears, eyes, and head are washed before going in the tub; also the buttocks, if soiled, using the diaper basin and cloth, not the bath water.

Ears. Use sterilized cheesecloth or old soft muslin squares, little or no soap.

Use warm water from tub.

Wash carefully in all creases and behind the ears; let no dirt remain.

Apply albolene or liquid vaseline for scurf.

Never use a pointed instrument; "never put anything smaller than your elbow in the ear."

Put soiled gauze in tissue paper receptacle.

Nose. Clean each nostril with a fresh cheesecloth square rolled to a point.

Dip the gauze in the liquid vaseline or albolene, and then push gauze gently into the nostril and twist around, until nostril is clean.

Never dip the gauze a second time into the oil; put used gauze into tissue paper receptacle.

If the nose accumulates dirt or mucus during the day, repeat.

Eyes. Use a fresh square of sterilized cheesecloth for each eye.

Wet the gauze in the weak boric solution (2 per cent.), and squeeze a drop into the corner of the eye.

Wash eyelids gently, toward outer corner, and carefully remove dirt or secretion.

Never put gauze in solution a second time; put gauze into tissue paper receptacle.

If eyelids are sticky or with slight secretion, anoint with vaseline, avoiding eyes.

Repeat boric wash at night, or at hourly intervals, if eyelids are inflamed.

Report severe redness or discharge to physician immediately.

Head. Use face cloth, soap, water from tub.

Soap wet cloth and rub over head, avoiding pressure over fontanel or getting soapy water in eyes.

If head has scurf, anoint at night with vaseline, olive oil, or fresh lard, and put on a thin muslin cap.

Never use a comb or harsh rubbing.

Body Bath. Note temperature of water and modify with supply at hand to exact degree. Place the baby in the tub, supporting the head and upper back with left hand. Baby may be lowered in the towel, if afraid.

If giving only sponge bath, hold head face upward over basin to rinse, and wash and dry each part of body separately.

Rinse the head several times very thoroughly with cloth.

Wash the body gently; use a little soap two or three times a week.

Wash under arms, in creases of neck, thighs, fingers, and toes; turn baby over and wash the back.

After six months, baby may splash or attempt swimming for one to four minutes.

Lift baby on to bath apron and give cool sponge very quickly.

Lay baby on table and wrap in dry Turkish towel.

Wipe face and ears with soft face towel; pat body dry with towel. Dry the head thoroughly.

Do not rub with towel before ten months.

Dry carefully under arms, in creases of neck, thighs, knees, fingers, and toes.

Remove wet towel.

In warm weather, after two months, allow an air bath one to three minutes, patting or gently rubbing skin with the hand.

Avoid the use of powder, except in hot weather, in creases, for fat babies; powder clogs the pores.

Put zinc ointment or albolene on chafed places.

If there is any bulging of the umbilicus, put two strips of surgeon's plaster across, to hold in place and prevent rupture.

During first four to six weeks, gently draw back foreskin in boys and cleanse with boric acid; wash genitals of girls with boric solution; apply vaseline. Later, general bathing is usually sufficient, and special attention is not desirable.

Dress with dry, warm clothes; brush hair; put on wrapper or shawl.

Cleaning Room. Empty tub, scrub, dry thoroughly, put away.

Put toilet articles carefully away from dust.

Remove soiled clothes.

Wrap soiled gauze in paper receiver and burn.

Leave room in order; lower temperature to 68°–70° F.

Avoid. Washing the mouth; the saliva keeps it naturally clean; the delicate membrane is easily injured.

Getting soapy water in eyes.

Removing wax from ears with instruments; soft wax is needed; hard wax may be softened with a few drops of olive oil or liquid vaseline.

Special washing of genitals after six weeks unless hard secretion develops, which should be softened and removed with olive oil or liquid vaseline. The usual daily bath and washing when diapering will cleanse sufficiently; further attention may lead to irritation or to bad habits. Unusual redness or secretion or adhesions should be immediately reported to the physician. Circumcision may be needed. Never let the child touch these parts.

Opening of doors, or other sources of draft, during bath.

Bathroom too warm — above 72° F.

Sudden change to cool temperature after bath; or taking outdoors in less than an hour after bath, in cold weather.

Public bathtub, as in hotel; infection is possible.

At any time putting the fingers into the baby's mouth unless necessary, and then only after thorough washing.

Care of Nursery. Watch the temperature, humidity, and ventilation; keep the room well sunned.

Air the room and bedding thoroughly with a strong air current from ten to thirty minutes twice a day, while baby is out of the room.

Keep clothing, towels, bedding, and furniture orderly and clean.

Drying of clothing and bedding, or cooking, should not be done here.

When baby is creeping or walking, take special care that pins, needles, scissors, matches, and other small objects are not on floor or in reach.

Clean daily while baby is out of room; dust is the baby's worst enemy.

Dust-raisers, such as corn or whisk brooms, feather or dry cloth dusters, are not to be used.

Carved woodwork or furniture, bric-a-brac or other dust catchers are out of place in the nursery.

Use a vacuum cleaner, dustless mop, oiled or damp dusting cloths; for toys, use a clean damp cloth.

Wipe floor, window-sills, furniture and toys, and vacuum-clean rugs.

Weekly Cleaning. Vacuum-clean rugs, floor, moldings, ledges, and walls.

Hang rugs out of doors from one to three hours.

Wash or wax floor; wash window-sills, doors, picture frames.

Hang fresh window curtains, screen curtains, crib draperies.

Wash bassinet canopy; brush bassinet thoroughly outdoors.

Clean carriage frame with vacuum, brush, and damp cloth.

Feeding. The kinds of food, quantity, intervals, and times of feeding are important.

The only natural and adequate food is mother's milk. No thoroughly satisfying substitute has ever been found, or is likely to be. Mother's milk has the following advantages:

1. It is germicidal — it contains no harmful bacteria, and it has elements which destroy disease germs in the baby. The babies that are nursed have a special protection against such diseases as influenza, whooping-cough, measles, scarlet fever, diphtheria.
2. It is always clean, and therefore greatly reduces the possibility of diarrhea. Only one breast-fed baby dies to ten bottle-fed babies.
3. It does not sour.
4. It requires no time for preparation or care of bottles.
5. It is always ready.
6. It is balanced in proteins, fats, carbohydrates, for the baby's needs, and the proportion of these elements changes with his development.
7. It is in fine, soft curds, adapted to the baby's stomach and digestion.
8. It contains vitamines, the living, organic principles essential to growth, and found only in fresh or slightly cooked foods.
9. It has growth-producing properties found in no substitute. In a study made not long since of 100,000 French soldiers, it was found that the group of those

who in their infancy had been nursed for six months averaged heavier and taller than those nursed only three months; the group nursed nine months likewise exceeded in height and stature those nursed only six months. Similar phenomena have been noted by many observers.

10. It produces better teeth, less subject to decay, both first and second set.

11. Nursing her baby promotes the return of pelvic organs to their normal condition, and thus promotes the mother's comfort, shapeliness and health.

12. It fosters her love for her baby, and the baby's love for her.

Patent baby foods are usually either some form of dried or condensed milk, or a dextrinized cereal. The constituents having been subjected to a high temperature, the vitamines have been destroyed; there are frequent cases of scurvy among babies so fed. These preparations usually contain a high percentage of starch or sugar, with an insufficiency of proteins, fats, and minerals; this produces plump babies that look flourishing in pictures, but that are lacking in solid muscles, bone and nerve tissue, and are subject to rickets, with little resistance for pneumonia or other germ diseases. Patent baby foods, condensed or powdered milk, are the last makeshift.

If artificial feeding becomes necessary, clean cow's milk is the best substitute. Cow's milk is made for the calf, whose stomach and digestion are much coarser, and development much more rapid, than the baby's. As produced, it contains too high a percentage of protein and lime, too low a percentage of sugar and phosphorus, and the curd is too large and coarse for the baby's digestion. It is difficult to produce perfectly clean, and to keep perfectly sweet until feeding. It must be modified carefully, according to the age and condition of the baby.

The formula is a technical matter for the medical or dietetic specialist to work out and prescribe in each individual case, and to change as the individual baby requires; it is no more a subject for experiment by a novice than is a case of fever. The formula prescribed must be prepared with scrupulous cleanliness and exactness.

As about ninety mothers in every hundred are fitted and able, with wise prenatal and postnatal hygiene, to nurse their babies, the subject of artificial feeding merits relatively less attention.

Ability to nurse is affected by conditions long before motherhood begins. An active, out-of-door life, with freedom from nervous strain or worry, and with clothing that does not compress or overheat the breasts, is important from childhood. Alcoholism in the mother's father, or Cæsarean birth of the child, usually inhibit nursing.

The ability is increased by a moderate, nutritious diet,[1] including cereals, milk, water (not exceeding an additional quart of liquid daily beyond the mother's normal need); by quiet mind, outdoor living, moderate exercise; by regularity in nursing, and the complete emptying of a breast at a nursing. It is decreased by a contrary régime, by fatigue, nervousness, or by interrupting or discontinuing the effort to nurse.

Fats are increased by more nutritious diet; proteins, by diet and decreasing the intervals between nursings. Fat in the diet does not affect the proportion in the milk. Indoor life, with overfeeding and insufficient exercise, will unduly increase the proportion of protein and cause colic. A too hearty diet, especially if high in sugars and starches, will unduly increase the fat. Irregular nursing, nervousness, not completely emptying the breast, decreasing the liquids in the diet, will decrease the supply.

---

[1] See Chapter IX.

Every drop of the mother's milk is of great value to the baby. If the quantity or quality is not sufficient, nursings should not be stopped, but one or more supplemented with modified milk, prescribed by the physician or dietitian, to furnish the balance. Contagious disease, except tuberculosis, is not necessarily a contraindication to nursing. Unless the milk disagrees with the baby, nursing need not be suspended during menstruation; otherwise, modified milk may be used temporarily, and the milk regularly withdrawn. Weaning should be done slowly, substituting one feeding for a nursing, and discontinuing other nursings at intervals of two or three days. In this way the baby is gradually accustomed to other food, and the mother's milk gradually disappears. Reducing the diet and omitting liquids for a few days will stop the flow of milk.

While the mother is in bed no more food is needed than under ordinary circumstances, as the food requirement is low during rest and the quantity needed by the baby is very small (page 118). An excess of food is likely to produce indigestion and constipation, and actually interfere with nursing. Foods easily digested, laxative, rich in minerals (especially lime and iron) should be selected through the nursing period. The diet list as for children six to eight years of age is a desirable one to follow.[1] No patent nostrums should ever be experimented with; they are worthless when not harmful. Beer and all forms of alcohol are particularly to be avoided; they do not increase the amount of fluid more than would an equal quantity of water or milk; any increase they produce is of fluid, not of nutriment; the alcohol enters the baby's system unchanged, and may injure his sensitive nerve cells. Doctor D. D. Bezzola, of Switzerland, who has made extensive studies of the effects of alcohol upon infancy, concludes: "The time may come when we shall see that every drop of alcohol taken by the parent means a drop of stupidity for the child."[1] Malt liquors are apt to disturb the mother's digestion and cause her to put on superfluous fat.

---

[1] See pages 164, 5.

Constipation in the mother will produce constipation in the baby, and laxatives or drugs taken by the mother are likely to affect the baby. Anger, worry, excitement produce poisons that render the milk indigestible, even poisonous; if these are indulged in, the baby should be given only plain or barley water, and the milk withdrawn and thrown away for one or two nursings.

Before a nursing the mother should wash her hands thoroughly with soap and hot water, and then wash the nipples with a saturated boric solution. The feeding should be done in a quiet room where there is no noise or conversation to disturb the baby, and the mother should be composed and relaxed. After the feeding, give the baby a swallow of water to rinse out the mouth. Wash the nipple again with the boric solution and dry thoroughly with a clean towel. A triple fold of clean, sterilized gauze, or surgeon's lint, should be pinned to the undervest, covering each nipple, thus protecting both the nipple and the clothing; this should be changed every day. Cleanliness will prevent thrush in the baby's mouth, and local soreness and discomfort for the mother.

The quantity normal at a feeding will depend upon the baby's age, and consequently the size of his stomach and the amount needed for his growth and maintenance. (See page 118.) The quantity taken at one feeding may be ascertained by weighing the baby just before and just after a feeding.

Until recently, two-hour intervals for feeding were prescribed for babies at one or two months, with two night feedings. Extensive studies in France and Germany (where the raising of babies for replenishing the army has made infant hygiene a subject of State investigation) have proven that babies usually thrive better on longer intervals, allowing time for the stomach to rest. Some continental specialists advise four-hour intervals from the beginning, and with some babies this is quite satisfactory. The Table on page 118 presents the more usual schedule now recommended. It provides for a three-hour schedule at the start, changing to four hours at five months, with no feeding after 10 P.M. The 10 P.M. feeding can usually be dropped with advantage at about nine months. To drop a feeding, substitute water for a few nights if the baby wakes or cries.

---

[1] "The Body in Health" (O'Shea and Kellogg).

Regularity is of the greatest importance in the feeding. Clock schedule should be observed from the first day and maintained thereafter. The digestive system is much like a machine, pouring out its digestive fluids at regular habitual intervals, and doing good work so long as this regularity is respected and observed in the feeding. Feeding the baby whenever he cries produces indigestion, colic, irritability, self-indulgence.

Ten to fifteen minutes is the usual duration of a feeding. The first milk is thinner, the latter part of the nursing richer. Generally one breast is taken at a feeding, the other breast at the succeeding feeding; if the quantity in one is insufficient, both may be used at one feeding. Neither the mother nor the baby should go to sleep during the nursing. If the baby dawdles, the food may be taken away until the next time. He should stop a minute at the end of each five minutes, to rest and breathe. If he regurgitates or vomits up after nursing, he is being fed too much, or the intervals are too short.

When the baby has finished, he should be handled very gently for the succeeding hour. His condition is not unlike that of an uncorked bottle. He should lie or sit quietly without jolting or rocking, much less tumbling or other vigorous manipulations. Lay him on his right side if he is inclined to eructation; on the left side in diarrhea or intestinal trouble, to open the rectal valves and allow gas to escape.

Between feedings, the baby should be given pure water, 65° to 70° F., at regular intervals, several times a day; or during the night if he cries. It can be given the first month from a sterilized medicine dropper, then from a spoon; the use of a cup may begin at five or six months.

If the water is not perfectly pure, it should be boiled twenty minutes; to remove sediment, strain through several thicknesses of sterilized cheesecloth.

Strained orange juice or prune juice, without sugar, at first diluted one half with water, may be given daily at six months, or earlier if the baby is constipated. Begin with one teaspoonful and gradually increase to four tablespoonfuls at six months. It should be given an hour before feeding time.

At six months a scraped, clean chicken or chop bone (after being cooked) may be given once or twice a day, a quarter hour before feeding, to exercise the jaws (being very careful that it is not dropped on the floor). At ten months this may be replaced once a day by a hard crust to be sucked after feeding, watching that the baby does not break off any pieces, or removing these from his mouth.

No other food should ordinarily be given until nine months, when weaning may usually begin by substituting for one nursing a feeding of milk and strained cereal, given with a spoon or from a cup. The formula should be prescribed by the physician or dietitian. Whether a baby should be completely weaned at nine months or at twelve will depend upon the condition of the baby, quality of the mother's milk, and the season. The baby and the milk should be examined, and the physician's or dietitian's advice followed. Starch is not normally digested under nine months; solid food or lumps may cause convulsions.

Stools. There should be at least one normal movement every day; some babies have two or three.

Begin the second week to establish regularity.

A movement is most likely to follow a feeding in early morning and the afternoon.

Normal stools are yellow, soft, and smooth.

If gray or brown, with mucus, blood, or undigested food, report to the physician.

If green or with foul odor, report immediately and substitute barley water for feedings. Spinach will cause green stools, or they may turn green an hour after removal; this is normal.

Keep the bowels in good condition by giving plenty of water, fruit juice, and abdominal exercises; avoid enemas, suppositories, and laxative drugs, all of which are detrimental.

Sleep. During his first year this should be the baby's chief occupation. Any period of rapid growth involves much work on the part of all internal organs, and a low power of resistance. In this twelve months, the weight trebles, and the length increases about one half; the brain increases its weight nearly three times, and has by far more work in learning new adjustments than in any similar period later in life.

The amount of sleep required at different stages is shown in the table on page 118.

The baby should always have his own bed, and if possible, his own room. He should preferably sleep outdoors except (1) in rain or falling snow, (2) damp, fogging weather, (3) with snow melting, (4) dusty, windy weather, (5) temperature below 40° F. or above 90°. The night air is as healthful as that of the day with these same provisions. A sleeping porch is an investment that will pay high dividends all through his life.

In dry, still weather, 68° to 95° F., the baby may be taken outdoors two or three days after his arrival; otherwise he must gradually be accustomed to the cooler outer air by being taken into a room with windows open on one side (wrapping him up judiciously), reducing the temperature every few days, until at one month he is breathing a temperature of 65° F., at two months of 55° F., and at three months, he can breathe it nearly at freezing (32° F.). Abrupt changes should be carefully avoided. Pure cold air is invigorating; stale air is poisonous; air too dry injures the mucous membrane of the nose and throat; air too moist is oppressive; all of these develop colds and pneumonia.

When the baby is indoors, there should be a constant, quiet current of fresh air, except during dressing and bathing. The air should be regulated, not by guess, but by a reliable thermometer (tested at the baby's head), and the equally important hygrometer for humidity, when there is not a constant intake of fresh, outside air.

The room temperature should not exceed 70° F. the first three months, and 68° F. later, when the baby is dressed. It may advantageously thereafter be 65°–68° ordinarily. When the baby is sleeping, or playing with wraps on, it is of vital value to have it lower, graduating it from 40° to 60° according to circumstances. Cold air is vitalizing; warm air is devitalizing. An open fireplace, with one window lowered from the top, or a six-inch window board for very cold or windy weather, will provide reasonable ventilation.

A baby has more room and sleeps more comfortably in his basket or crib than in a carriage. When awake, he needs more space to roll, kick, creep, walk. In the open country, he is much better off on the veranda or in the nursery with windows open, lying in his basket or pen, than rolled up in a carriage. Babies unfortunately housed in city apartments or crowded tenements must sometimes be confined in a carriage for the sake of getting to the open air. In a sunny, open-aired room or by an open window is better for a baby than down in a dusty street. The air at higher levels has less dust and fewer germs. The roof of an apartment house, if there is protection from chimney gas, hot sun, and high winds, is preferable to the street. He should never be put on the ground without the protection of a waterproof and blanket or rug to prevent chilling.

Making and Care of Bed. Lay in the mattress — preferably a washable folded quilt, laid smooth, or a floss, hair, or straw-filled mattress.

Cover mattress with papricloth nursery blanket or light-weight rubber sheeting, laid smooth.

Over this, lay the large quilted pad or felting.

Lay on the lower sheet, tucking it under the mattress.

Lay a small quilted pad under the baby's hips, or use a large size pad for older, tossing babies.

Lay a flat quilted or hair pad (which may be covered with a cotton or linen slip) or a folded diaper or soft folded towel for the head and face; a pillow is inadvisable.

Put on the top sheet and the coverlet, folding the sheet back six inches over the top of the coverlet for protection, and tucking in at sides (not tight) and at foot.

For cold weather, especially outdoors, put in first a woolen blanket. Lay several newspapers between this and the mattress, and when the baby is in, fasten this over the coverlet like a sleeping bag; for cold weather a knit or woolen sleeping bag is desirable.

When the baby is out of his bed, it should be taken apart, both morning and afternoon, shaken, thoroughly aired, and sunned.

In cold weather, the bed should be warmed before putting the baby in, and flannelette may well be used instead of muslin sheets.

Change sheets and pads whenever they are wet.

The crib bed is cared for in the same way. Padded side protectors should not be used, as they prevent good ventilation. The light-weight, washable side curtains may be used, but these on only one side and end; they should be removed and washed every week. The screen will furnish ample protection from drafts.

The bed should always be placed where it has a quiet current of fresh air but not a draft, strong wind, or hot sun. The basket should rest firmly on its stand, or a large table, or dry surface, never on the floor. Protection should be provided against flies, mosquitoes, cats, dogs, falling objects; and after eight months, against the baby's climbing and falling out.

"Putting the baby to sleep" should consist in laying the baby in his stationary bed, — warm, dry, comfortable, protected, — to go to sleep by himself. Rocking disturbs the circulation in the brain, produces only light sleep, and is bad for the nervous system. Babies often cry at first, when laid in bed, merely to be taken up, rocked, or played with. To humor them in this way is to cultivate in them self-indulgence, irritable temper, and tyranny. If let alone they may cry themselves to sleep for a few nights, but this will do them no physical harm; they will have learned their lesson, and the family will be spared further trouble.

The baby should not always be laid on his back, but may be laid on one side, or on his stomach, turning his head to one side and putting a flat pad under his chest. The latter position is not only a restful change, but also promotes digestion and encourages development of the muscles at the base of the head and in the upper back.

Disturbed sleep may be caused by bad air, overclothing, rough clothing, cold feet, indigestion, thirst, need of circumcision, a habit of rocking. It is not necessary to keep the house in silence while the baby is sleeping. Sudden and boisterous noise should be avoided, but the baby outdoors or in his own room learns to sleep undisturbed by ordinary conversation, music, household activities.

The baby should be gently wakened, if asleep at feeding or bath time. After a few weeks, his system will be so trained that he will naturally waken at these times.

The regular waking of the baby should be anticipated, and the mother or nurse should be there at the time to take him up, change the diaper, and make him comfortable before he begins to cry. Waking time should be a smiling time.

Play and Exercise. The first play is simple, muscular play of limbs.

After the first month, arrange clothing and covers so there is great freedom for kicking, twisting, rolling, stretching, pulling.

After two months, baby will not sleep so much and will be more active with hands, arms, legs.

He should have a pen or yard, raised six inches above the floor; or a board may be made to fit over mattress of crib. Pen or board should have woolen blanket and quilted pad over it; let baby kick and roll freely. The floor is bad because of drafts and dust. A large dry-goods box, raised, is better than the floor.

Do not prop a baby up in a sitting position until he is strong enough to hold himself up five minutes without support; then allow sitting position for only ten minutes at a time, not on the table or bed with the feet extended in front, but in a carriage or chair, legs bent at knee.

After two months place objects for him to grasp toward, upward, and forward.

As soon as the baby learns to smile, this becomes a little game. At six or eight months, he begins to play with vocal sounds, at peek-a-boo and pat-a-cake. Boisterous play, tossing, tumbling, tickling, are too severe for the delicate nerves; his laughing at this is a symptom rather of nervousness than of joy. The baby is not a plaything for his elders. The hour before bedtime is a good time for quiet mothering.

Motor development during the first year normally approximates the following plan.

Eyes begin to focus at about six weeks; coördination not well developed until three months or later; real tears, from the lachrymal glands, begin at about three months; knows mother or nurse by sight at about three months. Voluntary smiling begins at about five weeks, laughing at five or six months. Ability to sit alone develops at from six to eight months, to stand alone at twelve to fourteen, and to walk alone at fourteen to eighteen months.

Exercises. Special exercise may begin at three or four weeks of age. Begin with one exercise, and three-minute periods. Each fortnight time may be increased two minutes up to twenty-minute limit. Add new exercises gradually, at two-week intervals.

All exercises should be given slowly, rhythmically, two hours after a feeding, when baby is in happy mood; before bathing in mid-morning, or in mid-afternoon, is a good time. Do not permit fatigue or test endurance.

Always do the exercises in the same order, thus cultivating motor memory.

Lay the child on the padded nursery table; have clothing loose, or preferably without clothing; diaper unfastened; no drafts; temperature at 70° to 72° F.

Arm movements. For development of chest, upper back, upper arms.

1. Take hold of each hand; extend arms straight on table, at right angles to body, saying "down", 4 times; bring hands together in front of body as in clapping, saying "up", 4 times. (Figures 1, 2.)

2. At "down", bring arms down to sides, parallel with body; at "up" stretch arms upward to table above the head (if baby objects, each arm may be done separately) 4 times. Keep his elbows straight in both exercises. (Figure 4.)

Leg movements. For trunk and leg muscles; overcoming constipation.

1. Grasp foot, bend knee to body; do alternately with right and left, each 4 times; then both together 4 times. (Figure 3.)

2. Grasp leg, keep knee straight, bring leg to right angles with body; take each leg alternately, 4 times; then together, 4 times. Avoid sidewise movement. (Figures 5, 6.)

When the child is able to lift his head, he may be allowed to pull himself up as far as he can, holding the nurse's hands. Grasp his hands firmly so he will not suddenly lose his hold and fall back; do not pull him, but let him develop strength to pull himself to a sitting position. (Figures 7, 8.)

At first let him immediately lower himself to lying position, gradually sitting up one minute, and slowly increasing by one minute.

Many babies at about eleven months go on all fours, bear-fashion. At this stage the wheelbarrow exercise can begin, grasping the baby's feet and lifting them up while he supports himself on his hands and arms. This is strengthening for arms, chest, back, and trunk. At this age the substituting of rompers for dresses permits more freedom of action and minimizes accidents from tumbling.

Crying. Every baby does some crying, and every cry has some meaning. The wise mother will find the cause and will, if necessary, remove it. She will never use pacifiers, sugar, soothing syrups, loud noise, trotting, bouncing, tossing, irregular feeding, all of which are injurious to the baby's sensitive nerves.

Causes of Crying	**Nature of Cry; Treatment**
Painless, spontaneous exercise	Vigorous, red-faced. Usually at feeding, bathing, dressing; 3–20 minutes. Necessary
Physical discomfort.	Fretful or sharp; continued
Clothing wet; pins in clothes	Remove cause
Clothing wrinkled, tight, oppressive	Practice better hygiene Rub the back, with downward strokes
Clothing rough, hot	
Bed rough, covers tight	
Tired of one position	
Air oppressive, stale, too warm, dry	
Cold feet, thirst, overfeeding	
Sleepiness, overtired, hunger	
Teething, constipation	
Colic, gas, indigestion	Sharp, intermittent; feet drawn up
Illness	Moan, wail, feeble, intermittent
Psychological:	Lusty, continued
Desire for attention, especially at night	Stops when desire is granted Will soon stop if ignored
Desire for things forbidden	

A pernicious habit of self-indulgence and tyranny is cultivated if the baby learns that he can get his desires by crying. If indulged, even at a few weeks of age, he develops temper, self-indulgence, and disrespect for authority. If no attention is paid to such crying, or desires cried for are denied, he soon learns self-control, self-reliance, respect for law and authority.

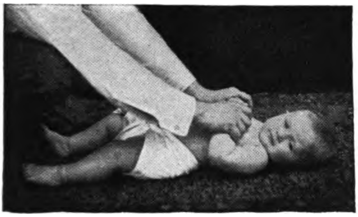


Fig. 1

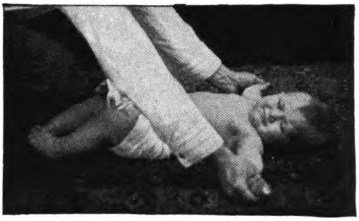


Fig. 2

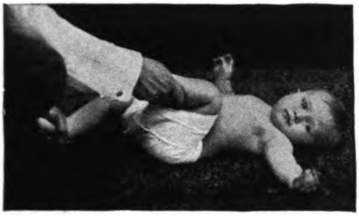


Fig. 3

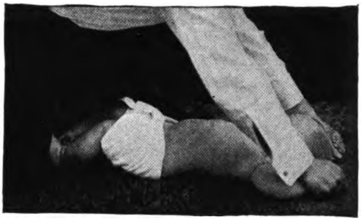


Fig. 4

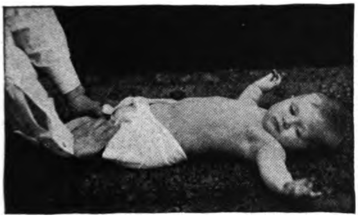


Fig. 5

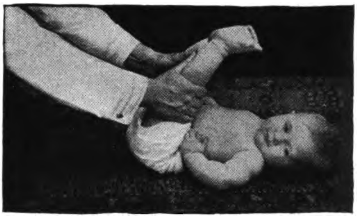


Fig. 6

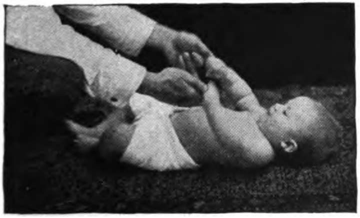


Fig. 7

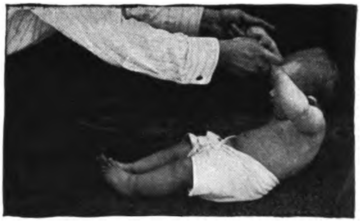


Fig. 8

Exercises for the Baby.

Infant Mortality.[1] Chief causes presented in the order of their frequency.

Immediate Causes as Given in Mortality Statistics	Underlying Causes
1. Diarrhea and indigestion	Ignorance; poor hygiene Low vitality Bottle feeding Unclean milk and preparation Solid food too early Irregular feeding
2. Pneumonia, croup, colds	Ignorance; poor hygiene Congenital debility Indoor living Overheated, overdry rooms Tobacco smoke in rooms Overclothing; overfeeding Playing on floor Sitting on unprotected ground Adenoids, enlarged tonsils
3. Congenital debility (weakness at birth)	Ignorance; inadequate prenatal hygiene Weak heredity Poor health of parents Use of alcohol by parents Syphilis Self-indulgence of parents Lack of continence during pregnancy Poor nutrition of mother Overwork of mother Too short interval between births (less than two years)
4. Contagious diseases: whooping cough, diphtheria, measles	Ignorance; poor hygiene Lack of resistance Indoor living Infections in crowds, streetcars, stores, dusty streets Infection of colds from family or visitors; kissing Adenoids, enlarged tonsils

---

[1] For statistics, see Appendix.

Defects Easily Acquired in Infancy[1]	Causes
Spinal curvature	Careless lifting, holding, or laying down Sitting up too early or too long
Bow legs	Diapers too thick Standing too early Inadequate feeding
Narrow pelvis	Diapers too tight Binders too tight
Misshapen ribs and chest	Clothes too tight Rickets
Rupture	Binder too tight Binder worn too long Rough handling
Internal displacements	Careless lifting or holding Jogging, tossing Too long sitting
Enlargement of stomach	Overfeeding
Tender or deformed feet	Feet kept too warm, perspiring Shoes tight, rough, non-porous Shoes worn too early Use of "baby walker" Walking too early
Nervousness	Irregularity Indoor living Wrong feeding Lack of training in self-control Nervousness of attendant Disturbance of sleep Need of circumcision Excitement; tickling, tossing, rocking

Frequent among preventable illnesses of infancy are colds, constipation, colic, rickets, scurvy, marasmus.

---

[1] For statistics on infant mortality, see Appendix.

Bad Habits to be Guarded Against	**Remedies**
Putting fingers in mouth	Give suitable toys
Thumb sucking (produces ugly mouth, self-indulgence; may cause infections, adenoids)	Put aloes or golden seal on fingers Put on sleeveless sack dress Put on aluminum mitts
Screaming, tantrums	Leave alone Deny object desired
Masturbation	Medical examination Circumcision Local cleanliness Toys; occupation

To state the underlying causes of infant mortality and defects is at the same time to emphasize their preventability and to indicate the method of prevention. The pathos is less in the high rate of death and illness than in their needlessness, — if only young women and young men were provided with even a meager preparation for this responsibility! The following are representative judgments expressed repeatedly by physicians everywhere.

"The problem of infant mortality is not one of sanitation alone or housing or indeed of poverty as such, but is mainly a question of motherhood."

— Doctor G. Newman (English).

"The parents in their homes are largely responsible for the high infant mortality."

— Doctor Ira S. Wile (American).

It is advisable to have the baby examined by the physician once a week during the first three months and at least once a month thereafter during the first year. If the daily régime is followed carefully, with judgment, the baby will probably gain normally in weight, be rosy and happy, free from any illness. The first year is the critical year, the time for every precaution both to prevent defects and promote vigor.

TABLE OF FEEDING, SLEEP, AND WEIGHT[1]

Average Weight of Baby in Pounds	Age of Baby	No. of Feedings	Ounces at Each Feeding	Total Ounces in 24 Hours	Intervals in Hours	Hours	Sleep
7½	Birth and 2d day	4	1	4	6		22 hours
7	3d day	6	1	6	3	6, 9, A.M., 12 noon; 3,6, 10 P.M.	"
	4th "	6	1½	9	3	"	"
	5th "	6	2	12	3	"	"
7¼	7th "	6	2½	15	3	"	"
7½	10th "	6	3	18	3	"	"
	Begin 3d week	6	3½	21	3	"	"
	" 4th "	6	4	24	3	"	21 "
8¼	" 2d month	6	4¼	25½	3	"	20 "
10½	" 3d "	6	4½	27	3	"	19 "
14¼	" 4th "	6	5	30	3	"	18 "
13¼	" 5th "	5	6½	32½	4	6, 10, A.M.; 2, 6, 10 P.M.	16 "
15	" 6th "	5	7	35	4	"	"
16	" 7th "	5	7½	37½	4	"	"
16¼	" 8th "	5	8	40	4	"	15 "
17½	" 9th "	5	8¼	41¼	4	"	"
18	End 9th "	5	8½	42½	4	"	"
21	" 12th "	5			4	"	"

---

[1] From "Feeding and Care of Baby."—F. TRUBY KING, M. B.

CHAPTER VIII

THE PHYSICAL CARE OF YOUNG CHILDREN[1]

"The care and improvement of the child's health is of paramount importance. A sound and efficient body is his initial stock in trade for winning the rewards of life."

— LIFE EXTENSION INSTITUTE.

"Instruction can wait, but the demands of health are imperative."

— WILLIAM H. BURNHAM.

"If only the intentions of nature were respected during the period of growth and development, the problem (of ill health) would by no means be so serious."

— LEWIS M. TERMAN.

"The sound body and vigorous health are the foundation without which the higher qualities of mind and heart develop precariously or feebly, or fail to realize their possibilities. The basis of education is and must be physical."

— J. M. TYLER.

The Foundations of Efficiency. It is the business of the home to develop in children such vitality that they will enjoy exuberant health in childhood, acquire habits of good hygiene, lay the foundation for endurance, beauty, and longevity in manhood and womanhood, and bequeath vigor of constitution to their children. The slogan is "Prevention — Vitality — Efficiency."

For efficiency the organs must be approximately perfect, and their functioning sure and strong.

---

[1] See Preface, page xiii.

The ultimate physical sources of power are:

1. Good nutrition and sound digestion
2. Sound, active lungs
3. Vigorous kidneys
4. Strong heart
5. Steady nervous system

That is, there must be ample intake of food and oxygen, thorough removal of waste, quick distribution of fuel, oxygen, and waste, economical working of the organism. The whole body must be organically sound, and all its functions must go on efficiently and vigorously.

Developing Vitality to Resist Disease. Disease may be due to:

a. Some defect of structure in an organ as the heart, spinal column, eye, tooth

b. Ineffective functioning of an organ or system, as in constipation, slow circulation, shallow breathing

c. Low resistance to disease germs or poisons, as in the contracting of influenza, diarrhea, pneumonia, whooping cough

The Means for Developing Vitality.

1. Good nutrition. This involves sound digestion and assimilation. It can be assured only through:

a. Wholesome foods, adapted to the age in quantity and preparation
b. Sound teeth
c. Regularity in feeding
d. Right conditions in feeding
    Eating slowly
    Chewing well
    Avoiding severe exercise within an hour after feeding
    Eating not less than 1 to 3 hours before bedtime
    Eating in a cheerful frame of mind
    Food at approximately body temperature

2. Thorough elimination of waste.

a. Through the lungs by oxidization. Deep and adequate breathing accomplishes the two ends of eliminating some of the poisonous waste (as carbon dioxide from the lungs) and bringing quantities of oxygen to the internal cells for burning up of waste. Active physical exercise and the habit of deep breathing are both necessary.

b. Through kidneys and intestines. These are Nature's plumbing system for removing poisonous waste. Regularity in these functions should become a habit in early childhood. There should be a bowel movement once or twice a day. Abundance of laxative foods in the diet, water between meals, outdoor life and activity, are natural means of regulating these functions.

3. Regulation of bodily heat. Colds and chills pave the way for vital disorders. They are not always symptoms of an infection. They are often due to poor training of the nerves in the skin to respond quickly to changes of temperature. The training of these nerves can come only as that of any other nerves — through their exercise. Indoor and sedentary life does not supply sufficient exercise for them; for this exercise there is required:

a. A low slightly variable temperature, 65°–68° F. indoor
b. Perceptible air current
c. Air baths, sun baths, and cold-water baths administered with judgment

4. Good circulation of blood. The blood is the only avenue by which nourishment can be brought to the cells or their poisonous waste removed. So far as it can be directly controlled, circulation may be quickened by abundance of exercise, cool temperature, wise distribution of porous clothing. The child should be taught how to quickly warm hands or feet by special

exercise, rolling or shaking of hands, stretching the arms and forcefully opening and shutting the hands, slowly rising and sinking on the feet, running, alternately stretching the toes and heels, rubbing the feet.

5. Protection of nose, throat, and chest. Nature has provided the nose with a delicate mucous lining that constantly secretes a fluid which has the power to destroy germs that may enter with the air. If this moist mucous lining becomes dry, it cannot function. It will not become dry unless the indoor air is too dry, as is the case in artificially heated rooms unless additional moisture is supplied by open dishes of water and by constant intake of outer air. The throat likewise suffers in a dry atmosphere.

Bundling the throat and chest keeps the skin moist and makes it more susceptible to congestion; they should be made resistant to congestion by deep breathing and daily cold sponging. Adenoids and enlarged tonsils are abnormal growths of lymphatic tissue in the nose and throat that make breathing difficult and inefficient, and that become breeding places for germs. The infection that they harbor leads frequently to colds, earache, deafness, tonsilitis, diphtheria, measles, scarlet fever. They obstruct the breathing and reduce the supply of oxygen, spoil the shape of the face, reduce the ability to think, and by their discomfort produce irritability and nervousness. They greatly interfere with the vitality. Adenoids should therefore be removed, and tonsils treated, their removal being a last resort when they are diseased.

6. Maintaining high count and efficiency of red blood corpuscles and of leucocytes in the blood. The red blood corpuscles carry oxygen. Evident symptoms of their inefficiency are paleness, low vitality, inertia. The leucocytes are the special blood cells that attack disease germs which have made their way past the sentinels in the nose, throat, and stomach. The num-

ber and efficiency of these bodyguards is increased by outdoor exercise, cold-water baths, air baths, sun baths, by adding more mineral food to the diet.

Additional means of preventing development of germ diseases are: (a) protection from contagion; (b) injecting of antitoxins. The greatest preventive, however, is internal resistance, since disease germs are usually in the atmosphere and are entering the system every day through the nose and mouth.

7. Storing of nervous energy. This is possible only through abundant sleep, regularity of regimen, temperance, moderation, self-control, avoidance of stimulants, narcotics, or dissipation. Nature has intended that childhood shall be a period of accumulating and conserving nervous reserve.

The effect of any regimen or any exception to a principle of good hygiene must be measured not simply by its immediate results but even more by its remote consequences. Nature is patient, long suffering, and will endure much abuse without great protest, but Nature is also an accurate bookkeeper and remorseless creditor; every debt must at some time be paid on demand, — it may be five, ten, forty years later, or in the lives of the succeeding generation. Nature makes no allowance for ignorance of her laws. Parental love cannot atone for lack of knowledge or experience. The death-rate from tuberculosis rises considerably among girls in their twenties. To what extent is this due to general poor hygiene, indoor life, lack of exercise, in childhood? During the last quarter century there has been a marked increase in the death-rate during middle age from kidney disorders, cancer, heart disease, insanity. It may well be asked to what extent these are due to habits of irregularity, over-feeding, wrong feeding, self-indulgence, nervousness, acquired in childhood.

Children's Typical Physical Regimen

1 to 2 Years 6: A.M.	2 to 9 Years 6:30–7 A.M.	After 9 Years
Toilet Milk Some children at this age will remain quietly in bed for an hour after taking milk, when the schedule for children 2–9 for rising and bathing may be followed Others are ready to be up, and these may have a cool sponge to chest and back, with bath at midday or evening.	Wakens Stretching for circulation and gradual increase of heart action Put on bathrobe and slippers, if cool Open bed to air Taken to toilet Teeth brushed; mouth rinsed Drink of water Vigorous exercise or play 2–5 minutes Fruit juice Face and hands washed, cool water Rubbing of entire body, 2–4 minutes (Rub from extremities toward heart) Bath as prescribed, 2–4 minutes Dressing: 5–15 minutes (After three years, child should dress himself) Bed, room, night clothes opened to air Children who have not slept outdoors should get out for 5–20 minutes vigorous play before breakfast	(Same as 2–9 years.)
	7:30–8:00	
Fruit juice; toilet Outdoors or play in open-air room	Breakfast Toilet (time for regular bowel movement) Hands washed Teeth brushed Bed made, bedroom put in order Outdoors by 9 A.M. (earlier in summer) If inclement weather put on out-door wraps; open windows in room for open-air play	(Same as 2–9 years.) Outdoors ½–1 hour before school Open-air school

	10:00 A.M.	
Toilet	Glass of water	Water
Mid-morning meal		
	10:30	
Teeth brushed	Fruit	
Toilet	Toilet	
Outdoors		
	11:30	
Undressed; drink	Hands washed, finger nails cleaned; preparation for dinner	
	12:00	
Bath; toilet; nap	Dinner	Dinner
	12:40 P. M.	
	Toilet	Outdoors ½–1 hour
	Hands washed	
	Undressed for bed; remove shoes, stockings, dress, waist, trousers	
	1:30	In open-air school 1–3 hours
Toilet; dressed		
	2:00	
Dinner	Toilet; dressed; bed made	
	2:30	
Toilet	Glass of water	
Outdoors	Outdoors, or open-air play indoors	Outdoors 2–4 hours
	4:30	
Drink water	Indoors; toilet, glass of water	
	Hands washed, finger nails cleaned	
	(Warm bath 2 or 3 times week; cool sponge in summer)	
	5:00	
Indoors; toilet	Supper	
	5:30	
Supper	Undressed; teeth brushed	
	Face, neck, ears, feet washed	
	6:00	
Undressed; teeth; toilet; in bed	In bed (6 to 9 years at 7:00)	Supper
	10:00	
Toilet	Toilet (until 6 years)	

Sleep. *Quantity.* All the sleep a child can get is so much of fortification against the inevitable stress of later years, as well as conducive to his immediate vitality, comfort, and good nature. Children vary individually; often, however, the nervous child who needs most sleep is least willing to take it. Children should sleep as much as they want to and should approximate the following amounts as a minimum.

Approximate Average Requirements[1]

AGE	HOURS OF SLEEP	TIME IN BED
12 months	15	6.00 P.M.–6.00 A.M. midday nap 2–3 hours
1–4 years	14	6.00 P.M.–6.00 A.M. midday nap 1–2 hours
4–6 "	13	6.00 P.M.–6.00 A.M. 1 hour midday rest
6–8 "	12	7.00 P.M.–7.00 A.M. 1 hour midday rest
8–10 "	11½	7.30 P.M.–7.00 A.M.
10–12 "	11	8 00 P.M.–7.00 A.M.
12–14 "	10½	8.30 P.M.–7.00 A.M.
14–16 "	10	9.00 P.M.–7.00 A.M.
16–18 "	9½	9.30 P.M.–7.00 A.M.

Conditions. 1. Bed alone. No one can sleep as comfortably or restfully with another person as alone. With little children, moral as well as physiological possibilities are to be considered.

2. Room alone, if possible, especially for children under six, that they may not be disturbed.

3. Outdoors if possible, on a sleeping porch, with

---

[1] Adapted and amplified from the Ninth Year Book of the National Society for the Study of Education, by permission of the author, Doctor Thomas D. Wood.

bedding protected from dampness, and provision made for first warming the bed at night in cold weather.

4. Room cool and with current of outside air, if sleeping indoors. Temperature not above 60° F. and may be as low as 50° F. to advantage for normal children over six months, or 32° F. without harm, with ample bedding and warm night clothes. Warm wrapper or shawl should be provided to wrap around the child when taken out of bed.

5. Children beyond infancy (1½ years) should have their supper an hour before bedtime until eight or nine years of age, and thereafter two hours before bedtime. Children should be taken up for the toilet at a regular hour, either nine or ten o'clock, until six or eight years of age, to prevent bed-wetting or disturbed sleep.

6. Every condition should be provided for complete relaxation and sound sleep, not light semi-sleep. Among these conditions, besides the foregoing, are:

Lights extinguished in sleeping room;

Stationary bed that does not rock;

Story-telling before child is undressed, not after he is in bed, that the mind may not be filled with vivid images, or brain congested, when trying to sleep.

Evening stories should be quiet, restful, happy, without gruesome, melodramatic, exciting, or sad atmosphere.

Chanting, humming, rhythmic singing, is relaxing, and five or ten minutes of this after child is in bed may be advantageous, especially with nervous or unruly children.

Massaging down the back, in long slow strokes, will relieve the congestion of the brain.

Give the child one toy to occupy his hands; prohibit more than one, to prevent mental activity.

Bedtime should not be a time of punishment, recalling of misdeeds, scolding; leave that until the child is most vital, in mid-morning or afternoon. Bedtime should be a quiet, happy time.

A thought impressed upon the child as he is falling to sleep, or directly after, especially if it is repeated for some days or weeks, is absorbed by the subconscious mind and has profound influence upon motives and action. The suggestion may be given aloud to the conscious mind while the child is still awake, or repeated softly or thought intensively, after the conscious mind is dulled by sleepiness.

The child should learn, from early babyhood, to go to sleep by himself, without a light, with the door closed. This is a most important training in self-reliance.

If these conditions are observed, sleep should be restful and undisturbed. Possible disturbing conditions may include constipation, indigestion, intestinal worms, nervousness. The matter should be reported to the physician. Bed-wetting may be overcome by taking the child up during the night, by giving no liquid after four o'clock, by promise of rewards, by mental suggestion. Circumcision may be needed. Punishment is worse than useless.

The Afternoon Nap. The same general conditions should be provided. The room or sleeping porch should be darkened, and ample ventilation and light covering provided. The outer clothing, shoes, stockings should be removed, and nightgown put on over the underwear; or the child may be completely undressed as at night. If the child is disinclined to sleep at nap time, use the spinal sponging with warm water, the spinal massage, and undress completely as at night. Even if the child does not sleep, he will receive the much-needed relaxation, and the resting of spine and heart, the work of which is greatly reduced while lying down.

Waking. The waking time should always be anticipated, and some one should be at hand to take the child at once to the toilet, to speak to him and re-assure him. This is important both for physical and moral reasons. Waking should be a happy time.

Clothing. Clothing should be comfortable to body and mind; it should provide freedom of action and thought, cultivate modesty, simplicity, democracy, daintiness, avoiding self-consciousness or vanity.

Too much clothing keeps the skin moist, and is a cause of colds.

Distribute clothing judiciously; avoid overclothing trunk and chest, underclothing legs.

Underclothing. Use light-weight underwear and give additional warmth by extra wraps as needed. Adapt clothing to the actual weather conditions, not to traditions of seasons. Avoid sudden changes, as from heavy play suit to thin suit.

Underclothing may be all cotton or part wool.

Porous clothing is warm, holding a protecting layer of air; thick woven clothing is cold, preventing the evaporation of moisture from the skin. For hot weather use sleeveless or half-sleeve gauze vests.

Use side elastics to support the stockings, never the round garters. Select carefully the waist for attaching supporters; the "Ideal" waist is excellent.

Protect the ankles and legs with stockings or leggings in cold or changeable weather.

Keep the throat open, except in very cold weather, and then protect lightly.

Shoes and stockings should keep the feet warm and comfortable, not perspiring, cold, restricted.

Night clothes. A complete change should be made at night. After three years a shirt is not needed at night, except in very cold weather. When diapers are no longer needed, the nightdrawers may be worn, using those with feet for cold weather. For outdoor sleeping in cool weather a sleeping-bag of eiderdown is desirable, and a light hood. A flannel or eiderdown bathrobe and slippers should be provided for emergency and morning use.

Care. Begin to teach the child at one year to put his shoes neatly together; by two years to lay his clothes neatly when taken off, and to hang up wraps; by three years to fold; by four years to take care of all clothing as removed and keep his chiffonier in order. Provide low hooks and small, low, easy-working bureau drawers within reach of the child.

Keep soiled clothing in a ventilated receptacle, out of the sleeping room or kitchen.

Keep hats and wraps well brushed; shoes brushed and cleaned; after five years, children should care for shoes.

Readymade clothing should be washed before wearing. Much readymade clothing, whether cheap or expensive, is made in sweatshops and crowded tenements.

Children's play clothes should be of such durable material and simple design that play may not be hampered through fear of soiling or injuring garments.

Avoid:

Underwear: Thick woven
Heavy cotton fleece-lined
All or three-quarters wool (unless open weave and soft)
Rough seams
Corsets
Stockings: Thick, heavy
All wool
Seams; much darned
Round garters
Tight hose supporters
Shoes: Patent leather or other non-porous material
Rough inside seams and soles
Tight across toes, instep, or ankle
Stiff, inflexible soles
Rubber soles unless with leather insoles
Too large or too small
High heels

Non-washable dresses or wraps for children under three years
Elaborate, showy clothes
Unbecoming clothes
Wraps: Fur or other heavy neck pieces
  Mufflers, except in very cold weather, and for children under five
  Gloves in winter. (Mittens give better circulation)
  Rubbers or overshoes, except in rain or slippery weather
  Ear muffs
  Veils
  Unventilated hats
Tight Clothing: Gloves, neckbands, waists, underwear, stockings, shoes

Ample size is especially important with growing children, and easily overlooked or neglected as they outgrow their clothes. Rubber in legs of readymade rompers is always too tight, and is better removed.

Bathing. Each child should have his own wash cloths and towels. Have a separate wash cloth and towel for the face, another cloth and Turkish towel for the body. Dry and sun wash cloths every day; boil them weekly.

Temperature of bathroom about 70° F. (65–70), with no drafts. Before the child is undressed, have everything ready, including the clothing to be put on.

Water and soap are irritating to eczema; use oil or, occasionally, water bath with bran.

The Cold Bath. The daily cold bath is of vital importance in training the skin to react quickly to temperatures, increasing the circulation, increasing the white blood corpuscles, and maintaining a high degree of vitality and resistance to illness, especially to colds, croup, coughs, pneumonia, and tuberculosis.

By careful attention to details, the cold bath can be given with a minimum of shock, and children enjoy it. It should be made as enjoyable as possible, and persisted in, even under protest. It should not be given, however, in a cold room. If the child has a cold, or the skin is cold and clammy, it should be given only to the throat, chest, and back. If the child is in a low vital condition, or does not react well otherwise, it may be preceded by a quick hot bath (98°–100°F.) to furnish body heat. The mildest form is to give it while the child lies in bed, quickly bathing and drying one part at a time. Ordinarily it can be given as follows, the whole procedure, including rubbing, not taking more than five minutes.

Let the child jump, run, or exercise vigorously for a few minutes before beginning the bath. Remove clothing and give a vigorous allover rub with hands or Turkish towels, rubbing from extremities toward the heart; let the child help in this and do it himself after four years. The child may stand with his feet in lukewarm water, or on a bath mat, not on a cold surface.

Temperature of the water should be at least down to 70° F. and as much lower as the child can take and react well. Salt (1 tablespoon to quart of water) gives a better reaction and lower range. Tepid water gives no tonic and may leave a chilly reaction. Have the wash cloth wet but not dripping. Wash quickly in the following order: (1) hand, arms; (2) neck, chest; (3) back, beginning at lower end; (4) legs, beginning with soles of feet; (5) abdomen. In this way the reflexes are bathed first, and the feeling of shock reduced, but the same valuable tonic results obtained. Dry quickly, rubbing with Turkish towels and hands. In cold weather, or if the skin is very dry, rub in quickly a little cocoa butter, olive oil, or cold cream. A spray with weak force, or pouring from a cup may begin in the second year; a strong spray or shower not until the fifth year.

The Warm Bath. For cleansing, the warm bath is needed two or three times a week in winter, and every day in hot weather. The body surface is relatively greater in children than in adults, and because of their greater activity and more rapid circulation, a relatively greater quantity of perspiration and waste material is constantly being poured out upon the skin. If this is not removed, it clogs the pores and thus keeps poisons within the body and prevents the normal absorption of oxygen through the skin.

The warm bath is best given at night, as a tub bath, before the supper, or an hour afterwards. When the bath is not given, the neck, ears, armpits, hands, and feet should be well washed. The water temperature should be 96°–98° F. A mild oil soap should be used moderately, such as Castile or Palmolive. The bath should be given in three minutes. Let the children splash in the tub for another three minutes, trying to swim. Always follow with the cold water to close the pores and prevent colds. This may be poured into the tub, to reduce the temperature to about 70°, or poured from a pitcher, or given with a spray, at 70°–80°, or given as a quick sponge at that temperature. Dry quickly and thoroughly, putting on a wrap to avoid chilling. If the child sleeps outdoors, the bath should be given an hour before bedtime in cool weather, or the oil rub may be given instead of water bath.

In hot weather children may have three or four sponge baths at 70°–80° during the day, or five-minute splashes in the tub at due intervals after meals.

The daily air bath is as much needed as the water, and should be given, with exercise and rubbing, if the water bath cannot be taken at the regular time. It is a tonic for the skin and gives the exercise to the nerves that cultivates resistance against colds.

Sun Baths. Sun baths, judiciously given, are also of great vitalizing value. In warm weather (70°–90° F.) children should be allowed to play outdoors with minimum of clothing, as sandals, white rompers or bathing trunks, and a light sun hat, for several hours a day, avoiding exposure of too hot sun (over 80°). Children not accustomed to this must begin gradually and may have a preliminary oil rub, to prevent either chill or sunburn. In cool weather, this may be given in the house, although the benefits are not so great, as the most effective (the violet) rays do not penetrate through glass. White or light colored clothing permits the penetration of light rays to the skin, and dark clothing prevents this; the former, therefore, is of greater vitalizing value. The sun and light baths are of great therapeutic value with nervous or anemic children. The tanning of the skin gives remarkable resistance.

The development of resistance through judicious use of baths and light, combined with deep breathing, would greatly reduce the mortality from colds, pneumonia, tuberculosis, which are the chief causes of death after infancy.

The Hands. Cleanliness of the hands is highly important both for sanitary and moral reasons. Therefore teach the child from babyhood, by example and precept, to always wash the hands:

1. Before touching food, either for eating, serving, or preparation, as a safeguard against infection
2. After eating, to prevent soiling of clothes, furniture, toys
3. After going to the toilet
4. Before going to bed
5. Before touching the eyes

The finger nails should be cleaned with an orange stick once a day, and before meals whenever dirty. To prevent hangnails, press the cuticle back around the nail every day. Trim finger nails round. A soft hand brush and Hand Sapolio, almond meal, or corn meal may be necessary for very dirty hands. Always dry thoroughly to prevent chapping, and in cold weather apply a lotion.

The Feet. Wash the feet every night when a bath is not given. Dry thoroughly between the toes. Perspiration is acid and soon causes soreness if it remains. Once a week trim the nails, cutting straight. If the feet are cold, put in cold (75°–80°F.) or hot (96°) water for three minutes, apply a 25 per cent. solution of alcohol, rubbing dry. If cold from exposure, always use the cold water. Chronically cold feet indicate wrong shoes, poor general circulation, or need of more exercise for feet. Corns, callouses, bunions, or misshapen toes can be prevented by using shoes that are comfortable and adapted to the shape of the foot.

The strength of the arch should be increased by foot exercises: (1) Rising slowly on the toes and slowly descending, keeping the weight of the body on the soles; (2) Alternately stretching the toes and the heel; (3) Massaging the ankles. Braces in the shoe prevent development of ankle muscles. Braces and arch supporters should be worn only on the advice and prescription of a physician, if possible, an orthopedic specialist. Much harm may be done by their wrong use.

Care of the Hair. During the second year the head should be washed two or three times a week, or oftener if scurf appears. Use Castile or Palmolive soap and rinse thoroughly to remove all soap and prevent formation of scurf. If a crust appears, gently rub in fresh lard, olive oil, or liquid vaseline at night, and wash off in morning; never use a comb or harsh rubbing to remove. During the third and fourth year shampoo weekly, and thereafter every two or three weeks.

The shampoo should be given in the daytime, when there is ample time and means for drying quickly and thoroughly, preferably in the sun. The scalp should be massaged five or ten minutes every day, through childhood, to promote good circulation in the scalp and keep it loose and clean, and the hair brushed thoroughly to remove dust. This is Nature's own tonic, and more effective than any bought at the drugstore. If the hair is thin, olive or cocoanut oil or vaseline rubbed into the scalp will stimulate new growth. Going without a hat (except, of course, in cold weather or hot sun) is beneficial for the hair. The hairbrush should be soft, and brush and comb should be cleaned every week. Tangles should be patiently and gently brushed out; braiding will prevent them.

Curly or straight hair is hereditary, and curls can be only temporarily produced in naturally straight hair. Heated irons, metal curlers, tightly rolled curlers, dampening the hair, are all injurious. For curling, only soft rags, or kid, on which the hair is loosely rolled, should be used, and these not applied at night around the head, to interfere with comfort in sleep.

When hair is trimmed, it should not be shaved off close at the base of the head, as is sometimes the fashion, leaving this most sensitive part of the head and neck suddenly and unduly exposed.

If the eyelashes or eyebrows are short, stubby, rough, light, they may be improved and darkened by daily application of vaseline, and brushing with a soft, narrow toothbrush. Such attention adds greatly to the beauty and expressiveness of the face, and will be a cause of much gratitude in later years.

Nose. The nose should be kept clean. For children under four, it should be cleaned every morning with the liquid vaseline or warm water, using a sterile piece of twisted gauze which is immediately wrapped in paper and disposed of. Repeat at night and during the day, if the nose is not clean. At three years, children should be able to blow the nose, and this should be a regular part of toilet-making both morning and evening.

In blowing the nose, one side should be held closed, while the other side is blown. To blow both sides at once produces pressure in the ears that may cause injury. Nasal douches are to be avoided except in illness and by the physician's orders.

Avoid (1) dusty air, as in the city streets, or in a room that is being cleaned; (2) overdry air, as in artificially heated rooms. Both of these are thought to promote adenoids. The former contains many disease germs. The latter drys the mucous membrane, preventing, therefore, its work of germ destruction, and producing uncomfortable, cracked membrane.

Throat. The throat is strengthened by the daily cold bathing of neck and chest. A child can learn to gargle at three or four years, and is then able to do it easily if soreness develops.

Ears. Wash the ears every day with warm water, making sure that no dirt remains in creases or behind the lobes. If wax accumulates, remove it with the twisted end of the wash cloth or gauze. Never put sharp instruments of any kind in the ear.

The lining of the inner ear is a continuation of the lining of the nose and throat. If the latter becomes infected, as with a cold, directly or from enlarged tonsils or adenoids, the infection is likely to continue into the ears, causing running ears, which may result in deafness.

The ears should not be made sensitive by cotton stuffing or ear muffs. In very cold weather, little children should wear a hood, and older children may do so with temperature below 40° F.

Never pull the ear lobe nor strike a child on the head; it may cause deafness. Teach children that blowing or shouting into the ear may produce deafness.

Teeth. After the first six teeth are cut, during the first year, it is advisable to have a small, soft brush to use with water, plain or with boric acid or bicarbonate of soda, after each feeding. This never should be neglected after eighteen months. Doctor Truby King advises giving the child a raw apple, a third of which has been peeled, and which is partially bruised until softened, following the midday feeding, after one year of age; munching this for ten minutes is a natural and effective method of cleaning the teeth. By four years of age, the child should be able to brush his teeth himself. Salt, bicarbonate of soda, or milk of magnesia are effective dentrifices. Patent pastes, powders, and liquids are expensive and of no more efficacy than the foregoing, their chief value probably consisting in the incentive they give to the use of the brush.

In brushing, the motion should be up and down, and rotary, as well as across the teeth; the inner and upper as well as the outer surfaces and the gums should be brushed. To safeguard against infection, teeth should not be cleaned over the hand basin, but into a receptacle for waste water.

Clean teeth will not decay. If the first teeth are allowed to decay, the second will not be sound. The rudiments of both sets of teeth are formed in the jaw before birth. The first teeth (20) are cut by thirty months; the first permanent teeth are the six-year molars; the second set are cut from six to twelve years of age. The enamel of the teeth is formed once for all during childhood. The substance of the teeth is mineral, chiefly lime. It will therefore be appreciated that the child needs abundance of mineral in order that he may have sound tooth material. This he can get only from mineral in his food (see page 169), or, before his birth, from his mother's diet. Good circulation in the jaws is also essential for normal development both for teeth and jaws, therefore the importance of some hard food every day after ten months.

The toothbrush should be selected with care. A good toothbrush is made with separate tufts, and with holes along the back, that it may more easily be kept clean. For children under three years it should be soft, for older children medium. The care of the brush is as important as its use. An unclean toothbrush may be a source of infection. It may be kept antiseptic by being very thoroughly rinsed, preferably under running water, then in borax water, or grain alcohol, and placed across hooks or a glass, bristle face down, to dry, after each using. Once or twice a week it should be thoroughly disinfected by drying in the sun, boiling in borax solution, or soaking in alcohol. It should receive thorough disinfection after each using, in case of influenza, tuberculosis, diphtheria, or other infectious disease.

Dental Examination. After one year of age the child should have a dental examination and tartar removed every six months. Any cavities should be filled, and irregular teeth straightened. A decaying tooth is a breeding place of germs which are carried, with the poisons they produce, to the stomach and thence through the system. Its sensitiveness compels the child to do his chewing entirely on the other side, spoiling the symmetry of the jaws, or to omit proper chewing. It causes pain that lowers the tone of the whole nervous system, produces irritable temper, and interferes with mental work.

At the slightest complaint of discomfort or the merest suspicion of decay, the child should go to the dentist for attention. Prevention saves both pain and expense. The dentist's office should be a place of comfort, not of torture by reason of neglect and decay.

The Eyes. The eyes of mankind were called upon chiefly for long-distance seeing, observation of operations with coarse materials, and slow adjustment, until the past few hundred years of civilization with its printing, sewing, and other fine close work. The anatomy of the eye has not yet become adapted to these new demands.

The child's eye is not fully developed. The shape of the eyeball is undergoing change during the first twenty years. Farsightedness is normal until from nine to twelve years of age.

Eyestrain will result, therefore, if the eyes are called upon for fine, close work during the first ten years. There is also a hereditary form of nearsight that can be detected as early as six years by the oculist, and that demands special care. Astigmatism (a structural defect causing blurred vision) is a prevalent cause of eyestrain. Squint and cross-eye, which are due to structural defect, require treatment in early childhood or babyhood to prevent the necessity of an operation, or possible blindness.

Even normal eyes will suffer if their use is abused. The following precautions should be observed with little children and taught to school children, as practices to be avoided for the sake of strong eyes:

Rubbing the eyes
Staring at a strong light
Watching a flickering light (as in moving pictures)
Sudden flash of strong light
Looking at pictures, reading, writing, drawing, or doing handwork, in poor light
Use of artificial light, for children under seven or eight years of age, for drawing, painting, reading, looking at pictures, or other fine work
Long application to close work at any age
Use of eyes for reading, pictures, or other fine work before breakfast

The child can be taught from babyhood to sit so that the light falls from the left upon his pictures or drawing, and not to sit either directly facing the window or with his back squarely against it.

Reading for five minutes requires more than a thousand separate movements of the eye, — as much work as is required of it in an hour of ordinary use; and the ciliary muscle, which controls the eye accommodation, probably is required in that five minutes to do as much work as in a day of ordinary seeing.

This has an important bearing upon the question of how early a child should begin reading, writing, sewing, or fine handwork; certainly, from the standpoint of hygiene, such work should be deferred until at least seven or eight years, and then begun only with the assurance of the oculist that the eyes can stand the strain.

School children should be taught to read with the best conditions, viz.:

Light from the left
Strong steady light
Light placed so it does not shine directly into the eyes and face
Not using the eyes before breakfast, as adjustment is slower and more difficult on first rising
Not reading on trains or other vehicles
Resting the eyes every fifteen or twenty minutes by looking up from the book at some distant object

Lamplight is easiest. Lights should always have a plain shade. Indirect lighting is best. Gaslight should have a Welsbach to give steady rays. White light is hard on the eyes; amber light, produced by amber shades, is easiest.

In selecting books for children, look for the following requirements:

Paper white or cream, without gloss
Lines short, preferably three inches
Margins wide
Print large
Wide spacing between lines

Certain contagious diseases of the eyes temporarily or permanently impair vision. At any sudden redness or white discharge, the child should be immediately taken to the physician, as blindness may follow in a few hours after infection, although it is preventable by a simple immediate treatment. Children should be warned never to use public towels or wash basins, or to touch the eyes with soiled handkerchief or dirty hands.

The eyes should be washed daily with the boric acid solution until three or four years of age, and after that with the plain or slightly salt water, using the boric acid whenever irritation or redness appears.

Motor Training and Poise. Provide some play apparatus that requires motor coördination.

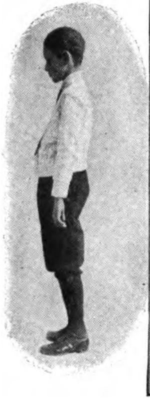
12 months to 3 years. A stile, of one or two low steps, adjusted to the baby's size, with handrail each side, on which he can climb up and down. Tenpins, large size ringtoss.

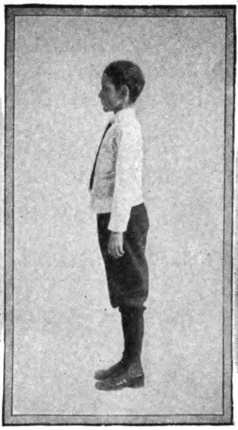
Use a small enamel cup for drinking, and let the child, when feeding, use his spoon and cup himself as early as he shows an inclination, which should be not later than a year and a half. Do not scold when he spills things while learning. By three years he should have control, and be held to strict carefulness and neatness in eating.

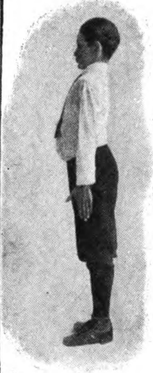
3 to 6 years. Jumping place, with elevation 1 to 2 feet from which to jump toward a marked space. Teach the child how to jump correctly, landing on the soles of the feet and bending the knees as he lands.

Car rail or substitute to walk along, preferably raised 1 to 6 inches from the ground. A single painted board 4 inches wide, or a painted mark 2 inches wide will answer.

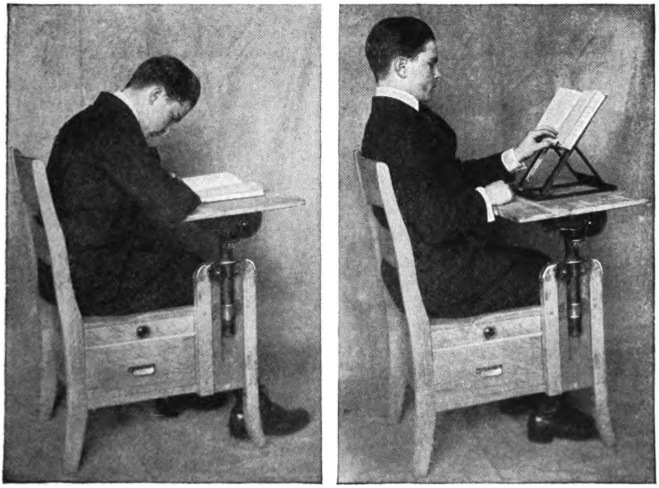
Ringtoss more difficult
Throwing at a mark on the ground, floor, or wall
The fence for walking sidewise or for swinging from, as used by Montessori
Swinging rings and a horizontal bar
Marching, skipping, folk-dancing







Bad Posture. Good Posture. Bad Posture.



Bad Posture. Good Posture.

American Posture League Chair and Bookrest.

Courtesy of American Posture League.

From three years, let him carry his tray at meal time, with dishes and food.

Teach the child how to gain poise when he begins to feel worried, cross, nervous, excited:

a. Relaxing completely, sitting down if necessary
b. Taking long, slow, deep breaths
c. Sitting quietly for a few minutes to think, — with eyes shut, if thinking is thereby easier
d. Thinking of something funny
e. Getting away by himself, in a room, or out with nature

Posture. Find out what is good posture in sitting, standing, and walking, and see that the child maintains these. During childhood and youth the bones are still soft and yielding, readily altered in shape.

Stretching, throwing, swinging from rings or horizontal bars, climbing, rowing, swimming, are excellent preventive exercises, and useful for correction of curvatures or round shoulders. For the child's use select chairs that are properly constructed (as most chairs are not) and a table at which he can work without stooping, changing such furniture to meet his needs as he grows.

Spinal curvature and round shoulders may be caused by rickets, eyestrain, partial deafness, improperly constructed chairs and tables, long sitting, insufficient outdoor life and physical activity, unequal strength of complementary muscles of back and chest, or of right and left sides, and by carrying always on one side.

Spinal curvature crowds the internal organs, interfering with the normal functioning of lungs, heart, blood supply, stomach, and intestines; it causes pressure upon the spinal nerves, and consequent disorders in remote parts of the body controlled by the affected nerves.

If curvature has developed, special gymnastics and training should be faithfully practiced in addition to removing the cause. Braces are inadvisable, preventing needed exercise. The correction of even the slightest curvature is important while the bones are still plastic. The special exercises should be prescribed by a physical director or physician.

Physical Exercises. A child who has ample outdoor play space, and clothes adapted to outdoor play is not likely to need any special exercises. For correcting abnormal or weak conditions, the following are effective:

1. Hanging from bar or swinging rings. (Figure 3.)

To overcome tendency toward spinal curvature, and to strengthen back and trunk muscles.

2. Lying on table, hard bed, or floor (covered by clean sheet or blanket); lift knees to chest, alternate legs four counts, then together four counts. (Figure 1.)
3. Same exercise in standing position.
4. Lying on hard, clean surface, lifting feet at right angles to trunk; alternate legs four counts; together four counts. (Figure 2.)

Exercises 2, 3, and 4 are valuable in overcoming constipation, promoting digestion, strengthening trunk muscles, increasing circulation to trunk and pelvis.

5. Lying on hard surface, arms folded, feet held down, rise to sitting position. Four counts. (Figure 4.)
6. Same position, but hands clasped back of head. Four counts.
7. Same position, but arms extended above head. Four counts. (Figure 5.)

Exercises 5, 6, and 7 strengthen trunk, chest, and back muscles and have also the values of 2, 3, and 4.

All exercise should begin slowly and be done steadily. Especially with trunk exercises there should be no sudden, jerking movements. One who is unaccustomed to these exercises should begin with the easiest, (2) and (5), and gradually begin the more severe ones.

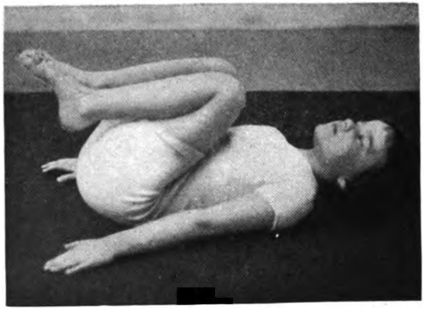


Fig. 1

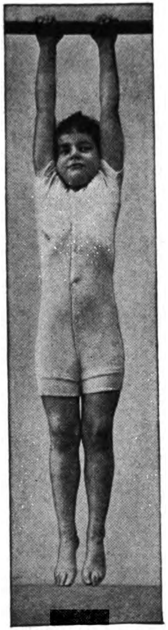


Fig. 3

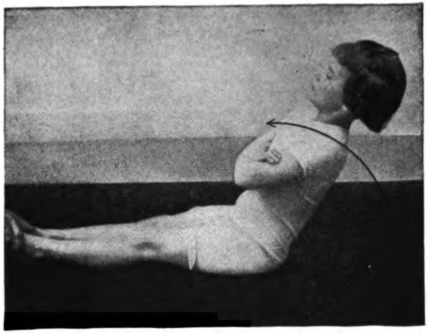


Fig. 4 .

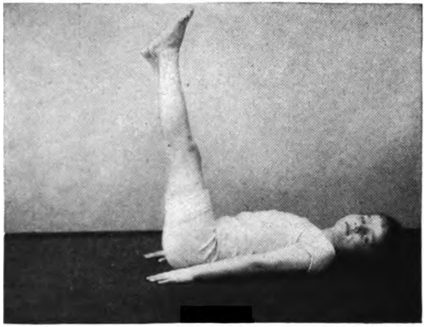


Fig. 2

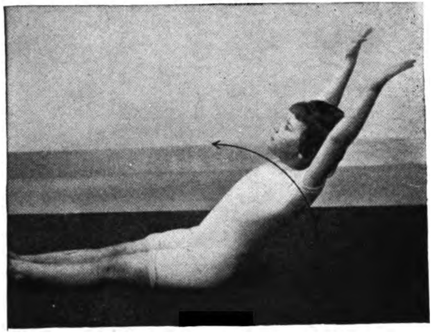


Fig. 5

Exercises for Trunk, Chest, and Back.

Oi

These exercises are especially important for girls, who are likely to miss the climbing and tumbling exercises that their brothers enjoy. Girls especially need the straight spine, the strong trunk muscles, and the thorough pelvic circulation.

8. Lying on a hard surface, knees bent, forcibly contract and expand the abdominal wall. By placing the hand on the abdomen, the sinking and rising of the abdominal wall is easily marked.

This is a very mild exercise for increasing circulation in the trunk and pelvis, thereby promoting digestion, overcoming constipation, and strengthening the pelvic organs.

Preventing or Overcoming Nervousness. Nervousness may express itself as:

Irritability, peevishness
Temper, tantrums, lack of emotional control
Poor coördinations, dropping things, shuffling in walking, waddling gait, inability to hit a mark or walk on a straight line.
Lack of motor control; involuntary jerkings of muscles, twitchings (chorea or St. Vitus' dance)
Restless sleep, disturbed sleep, nightmares, sleeplessness
Masturbation
Bed-wetting, weakness of kidneys
Nail-biting
Fears
Silliness, simpering
Inability to learn
Inability to carry out a plan; much dreaming that never attains to expression in action

Marked nervous defects, such as imbecility, idiocy, epilepsy, manias, cannot be more than mentioned here. They may be present from birth, or may develop later. Their treatment belongs entirely to the field of the physician, neurologist, and psychopathologist. Treatment of mental defects should begin at the earliest possible age; some forms are curable if treated early.

Nervousness may be due to physical or psychological conditions. It may appear at any age. Its causes may be immediate or may lie farther back in childhood, infancy, or heredity. As the nervous system was the latest to evolve, it is therefore the least stable, and the most likely to suffer under stress of conditions. If there is a heredity in either branch of the family, either of marked nervous defect, alcoholism, or neurasthenia, special precautions should from the first be taken to overcome this predisposition in the child.

Other causes of nervousness in children include:

Irregularity of régime
Poor nutrition
Constipation
Insufficient sleep, fatigue
Indoor life
Decaying teeth
Adenoids or enlarged tonsils
Eyestrain
Fine handwork, or reading; or other abuse of eyes
Pressure of school work
Undue excitement such as crowds, parties, theaters
Tickling, teasing, nagging, tossing
Masturbation
Suppression of curiosity regarding sex phenomena
Suppressing expression of interests, curiosity, or emotion
Worry or unhappiness
Threats of fearsome punishment
Cultivating of fear by "scaring", telling of grewsome or unhappy stories, seeing exciting picture plays
Lack of training in self-control

Preventing nervousness is a matter of preventing these causes; overcoming is a matter of removing the cause and conducting a constructive program of physical régime and psychological treatment. The physical régime will include regularity, free outdoor life and play, open-air sleeping, frequent rest periods, nutritious diet, with special attention to sufficiency of mineral and laxative foods, and use of relaxing or energizing exercises.

Rhythm through instrumental music that is listened to, or in dancing, marching, gymnastic exercises, and singing, is of great value in overcoming nervousness. Cheerful, happy, comfortable stories and pictures will supply mental images to replace the disturbing ones, especially before bedtime.

Relief from intestinal worms and local irritation, or circumcision, may remove the cause of masturbation. The child's questions regarding sex phenomena should always be answered wholesomely, reverently, sufficiently to give him a true perspective and to satisfy his natural curiosity.

The substitution of large muscle work, as with large blocks, balls, carpenter tools, will provide activity without taxing nerve ends of fingers. Examination by the oculist (not optician) will locate eyestrain. Opportunity for expression of wholesome emotions and interests will remove tension and sense of suppression.

Interests or emotions that appear unwholesome or abnormal should be patiently and thoroughly analyzed to discover the germ of good that is in them, and to utilize this; consultation with a physician, teacher, minister, social worker, or psychologist, may be enlightening. Wholesome emotions and interests should have encouragement for full expression, limited by the strength of the child and courtesy due to others.

Detect fatigue symptoms: (a) the tenseness shown by flushed face, rapid, labored breathing, excitement, erratic movements; or (b) relaxation shown by listlessness, indifference, irritability, forgetfulness. Fatigue not only overstrains the nerves; it develops poisons in the blood that affect the whole system.

Fears are a difficult problem. Make a list of the things it is observed the child fears, such as the dark, cats, dogs, flies, etc. Gradually, slowly, patiently lead him to acquaintance with these, and therefore to his own destruction of the fear. Teach him to memorize quotations that ring with confidence, faith, courage.

Cultivate self-control through regularity of regimen, the example of poise, the denying of any object that is screamed for, or cried for, the inculcating of an ideal of self-control through story-telling.

Sex Hygiene. This is both a physiological and a psychological problem. Both phases must always be recognized.

Physiological Hygiene. In infancy, keep the special organs clean as directed in Chapter VI. Consult a physician regarding the advisability of circumcision; this is needed in about twenty per cent. of boys, and is often advisable in others; it is sometimes required in girls.

Take special care that clothing is not rough, tight, or irritating about the genitals; therefore avoid (a) underdrawers with more than one-quarter wool; some children with sensitive skin should have even these lined with thin cotton gauze; (b) drawers cut too short or shallow in the seat (a defect in some ready-made styles); (c) trousers too short or tight or with rough seams; (d) suspenders too short, that pull the trousers too tight; trousers during first six years should not have opening in front.

With young children, watch for any local irritation or discharge. For the former, use local applications of boric solution as a wash, followed by a starch powder or zinc ointment. Discover the cause; it may be rough or damp clothing, intestinal worms, acid urine due to excess of sugar or meat in the diet, or to insufficient drinking water. Alkaline diet, or a pinch of soda in the drinking water for a few days, will help to counteract the acidity. As the child grows older, beyond six years, encourage him to report to you any irritation, and teach him how he should relieve it.

If a discharge appears, of mucous, whitish, or greenish matter, report the matter immediately to the physician, and take every precaution against infection; use a local wash of boric acid, double strength, cleanse the hands with antiseptic solution, sterilize the child's wash cloths, towels, underdrawers, and bedding, and let him have his separate wash basin, chamber, and bath until the physician gives assurance of no contagious disease.

Teach the child to always wash the hands after going to the toilet. See that the hands are outside the bed covers at night; they may be folded under the cheek, or the child may have a doll or toy animal to hold. Be watchful, but do not let the child ever surmise that you mistrust, suspect, or even watch him in these matters.

Avoid soft beds and especially feather beds, which are enervating and are overheating to the spinal nerves.

Teach children never to use a public drinking cup or towel; and never to sit on a public toilet, even in public school, without first laying a paper over it so they do not come directly in contact with the seat.

Avoid stimulating foods, such as condiments, or an excess of meat — more than 2 or 3 ounces a day.

Avoid excitement by late hours, especially late dancing parties, during adolescence. Set a standard of ten o'clock closing for school or home dances for these young people. Teach them to find recreation not dissipation.

Psychological. Cultivate respect for the body and reverence for its creative work and organs, for motherhood, fatherhood, and birth of any creature.

Cultivate a sense of modesty in both girls and boys from babyhood.

Inculcate in boys a spirit of chivalry toward all girls and women; in girls, a sense of reserve, and an appreciation of their responsibility for the social and moral standards of boys.

Instill a personal ideal of worthy fatherhood and motherhood; this may begin incidentally at two or three years of age.

Give instruction in the biology of reproduction in plants, emphasizing the protection, care, and forethought for the young. The child naturally sees all the phenomena of life in an impersonal and wholesome, that is, a scientific way. Cultivate this attitude in him and in yourself.

Before children begin going to school, see that they are informed sufficiently about the origin and birth of human life so that they will no longer be curious or interested if unwholesome talk is presented. Ill-trained children or unscrupulous adults usually sense a well-informed and wholesome-minded child and are less likely to present any vulgar conversation in his presence.

The boy will early meet with superstitions and perverted ideals among his companions, particularly after twelve years, when the influence of parents and teachers is waning before that of his companions. Therefore teach him before this age that he has a great trust, — to protect these organs sacredly for his children until he is grown and is wise enough to be a father; that these organs are not like muscles which must be used to develop and preserve their function, but that they are glands, secreting fluids as other internal organs do, like the spleen or the thyroid gland, and that these fluids are needed for the well-being of the whole body; that the boys who ignorantly think otherwise or act otherwise are greatly injuring and weakening themselves.

Prepare both boy and girl, by instruction at about eleven years of age, for the physical changes that are before them, so they will not be surprised or frightened when these changes come. Thus prepared, they will not ignorantly resort to measures that may produce lifelong illness, or fall into the net of quacks, evil-minded men or women, or ignorant companions.

Avoid taking the children to the theater before twelve or fourteen years of age, and make it an event worth while. Be sure beforehand that the play is clean and wholesome and not overstimulating. Never allow children to go to theaters or picture plays without a responsible older person. Be your children's companion in drama and in fiction as long as possible, — as long as you can see with their eyes and their interests.

Keep children occupied with handwork, physical activity, and outdoor life. It is the child with nothing to do, living an overfed, indoor, uncontrolled life, who has every condition for falling into temptation.

Cultivate an appreciation and taste for good literature, poetry, sculpture, painting, music. Provide abundance of good and wholesome books.

Teach children from babyhood that to follow merely the instincts and the line of least resistance, to act merely from impulse and emotion, is unworthy of a human being.

Foster idealism and religion, which have always been the great bulwarks of the soul and the refiners of instincts.

City or Country Life. That the country provides more natural physical conditions and health opportunities is self-evident. The open air, the larger space and facilities for muscular exercise, the freedom from artificial excitement, are all essential to vitality. The marked differences between city and country children in height, weight, chest girth, strength of grip, vitality, endurance, are attested by the statistics of special investigators as well as by general observation. The chest girth of country girls more nearly approaches the average for boys of the same age than does that of city girls. It is true that in sanitation the rural districts and small towns have not kept pace with the large cities. Ventilation, drainage, water supply, disposal of sewage, clean milk, the reporting and control of infectious diseases, are too often neglected in rural districts. The improvement of these sanitary conditions is part of the responsibility of the home-maker.

The School and Physical Health. The weight of medical, biological, and psychological authority of such experts as G. Stanley Hall, John Dewey, Arthur Holmes, Lightner Witmer, Thomas D. Wood, J. M. Tyler, is decidedly against prevailing unhygienic practices of the schools, such as home study for children under high school age; nerve-racking academic examinations; fine work in reading and writing for children under nine years of age; indoor school life for young children; artificial, sedentary life instead of physical activity during school age; the over emphasis of the mental and the neglect of the motor activities.

In a recent volume, "The Health of the Child," Lewis M. Terman writes:

> "The close correlation of morbidity with years of school attendance and with the progress of the school term; the deterioration of attention toward the end of the school year; the damaging effects of strenuous school activities upon appetite, digestion, metabolism and the constitution of the blood; the ill-effects from deprivation of fresh air and healthful exercise; the impairment of nervous coördinations and the profound disturbances reflexly produced by worry — these and other injurious effects have been sufficiently attested to justify the most vigorous prosecution of reform in matters of educational hygiene.

"We have taken the child out of its natural habitat of open air, freedom, and sunshine, and for nearly half his waking hours we are subjecting him to an unnatural régime, one which disturbs all the vital functions of secretion, excretion, circulation, respiration, and nutrition."

Defects Prevalent Among American School Children

Total School Population, 20,000,000

Defect	Percentage of School Children Affected
Teeth	50%–90%
Eyes	15%–30%
Spinal curvature	20%–30%
Round shoulders	5%–10%
Tuberculosis (predisposition)	15%–20%
Ears	10%–20%
Enlarged or diseased tonsils	10%–15%
Adenoids	8%–10%
Malnutrition	6%–30%
Nervousness	5%

These defects are often acquired before school age, or as a result of home conditions during school age. Note that they are chiefly preventable by good hygiene in the home, practiced by intelligent mothers and fathers.

Forms of rheumatism, heart disease, infectious diseases (such as whooping cough, measles, mumps, scarlet fever), respiratory diseases (as pneumonia, croup, tuberculosis), all are prevalent and preventable diseases of childhood, reaping every year a great harvest, and leaving a trail of permanent defects.

Two means of prevention are necessary and at hand:

(1) Wholesome daily hygiene (the elements of such hygiene have been suggested in the foregoing pages). (2) Early detection of defects or weakness, and their remedy in the incipient stage. This is possible by an examination every six months during childhood

and youth, by (a) a competent physician, trained for preventive examinations, (b) osteopath, (c) dentist, (d) oculist. With these two precautions on the part of the home, the present enormous deathroll of one hundred and fifty thousand little children each year from *preventable* causes, and the preventable defective conditions of fourteen million of the twenty million school children, could be practically eliminated, and as reckoned by Professor Irving Fisher, the span of life for each child could be increased fifteen years.

CHAPTER IX

THE FEEDING OF CHILDREN[1]

"We are what we eat."

"We should eat to live and not live to eat."

"Heavenly Father, for this food,
We, Thy children, thank Thee.
Sun and showers and earth have wrought it,
Labors of our neighbors brought it.
May it give us strength to love
And serve Thee and our neighbor."

One of the most important factors in the well-being of any individual is right feeding in childhood, especially in early childhood. One of the chief causes of sickness and death among young children is their wrong feeding. A conservative estimate would be two thousand ill on any one day from this cause. Further, wrong feeding weakens the system so the child is much more susceptible to infectious diseases.

Not only the general health of the individual but also the quality of the teeth, the efficiency of the digestive system, the desire for stimulants, the stability of the nervous system, the quality of mental activity, power of will, strength of character, the happiness or misery of everyday living, are profoundly affected by the foods and régime of feeding during childhood.

The intelligence of the mother or the nurse, the grandmother, the father, and the friend has far more to do with the right feeding of children than does the amount of the family income. The child in the wealthy home is quite as liable to be wrongly fed as the child in the poor home. It is possible to buy enough of the right kinds of nourishing foods for a very small sum.

---

[1] See Preface, page xiii.

To feed a child so as to produce one hundred per cent. efficiency in his health to-day and fifty years from to-day should be the ambition of every one who has the care of that child, — not merely to keep him from death or present illness. This is not an easy matter, nor to be learned in a day or a month. It requires careful and earnest study of food composition, food values, the physiology of digestion, dietetics, cooking; and then patience, thoroughness, and practicability to put this knowledge into use three to five times a day, seven days in the week, every week in the year.

The Fundamental Principles of Feeding

Cleanliness and Purity. The following standards are necessary to meet these requirements.

1. Unadulterated foods. Foods unwholesome because of adulteration include:

a. Canned goods preserved with benzoate of soda or other artificial preservative
b. Candies, jams, pickles, containing coal-tar dyes and other adulterants
c. Sulphur-bleached dried fruits and molasses
d. Bakery goods made with preserved eggs, milk, and other adulterants

2. Protection from dust, dirt, and insects. Dry foods, such as bread, crackers, dates, figs should be kept wrapped in moisture-proof paper. Butter, bakery goods, and dried fruits not so wrapped should be kept under glass. Fruits and vegetables should be kept within doors, protected from dogs and cats. Milk, which is most easily contaminated, should be produced

in a clean dairy, by clean workers, kept covered constantly, protected from animals, in a cool place.

3. Preparation under sanitary conditions. Bakeries and other food factories and kitchens should be scrupulously clean, with abundance of fresh air and sunlight. All persons handling food should be free from any contagious disease, with clean hands and garments. This factor is even more important than freedom from adulteration.

It is easily possible to-day to ascertain what products meet the pure food requirements. By careful purchasing, and the preparation and serving of food at home by healthy individuals, with intelligent attention to sanitation, these essential requirements of hygiene can be most completely assured.

Regularity. Meals should be served promptly at *regular* hours, and *no food taken between meals.* If food is taken irregularly, rhythm is disturbed, the digestive fluids are not ready and cannot act efficiently. If food is taken while undigested food remains in the stomach, the work of digestion must begin over again, as the fluids secreted in the early stage of digestion are different from those in the last stages. Thus the food previously taken is kept in the stomach too long; it ferments, too much acid is produced, sour stomach results, the stomach is irritated, the glands are overworked and become exhausted, and the consequence is poor digestion. To do its best work, the stomach requires rest between feedings.

During sleep, the activity of the digestive tract is very slow. Solid food taken less than an hour or two before bedtime is not well digested and is likely to remain in the stomach and ferment; the pressure produces disturbed sleep and "bad dreams"; the stomach is not ready for digesting breakfast; the individual wakens tired, without appetite, and possibly with headache or nausea. Babies, having only milk, can be fed at bedtime. With children two to six years, an hour should intervene between the light supper and sleep; with older children, from two to four hours.

If a child is regularly hungry between meals, the cause may be (a) insufficient quantity at meals; (b) diet not well balanced — frequently insufficient mineral foods; (c) eating too rapidly so that food is not well chewed and therefore not assimilated; (d) too long intervals between meals. If occasionally hungry between meals, light food requiring little digestion should be given, such as fruit juice, ripe fruit, dates, figs, or a glass of milk. Cake, cookies, candies, or other hearty foods upset digestion.

Simplicity. This applies both to the variety served at one meal, to the method of preparation, and to the serving. A maximum of five or six food items at one meal is sufficient, and is more easily digested than a greater number. Foods simply cooked require less work of the digestive organs than do more complex mixtures; at the same time they cultivate simple tastes, with their contentment.

Cheerfulness. Good cheer is the best of appetizers. Professor Pawlow has discovered that the amount and the efficiency of the gastric juice are affected by the anticipation and enjoyment of food, and that the gastric juice thus poured out at the beginning of a meal, which he has called the " appetite juice", is the most powerful and active. Happiness and laughter (but not silliness or horseplay) should therefore be encouraged at meals.

A child should not be fed when excited, angry, cross, crying, unhappy, or overtired. Under emotional stress no gastric or intestinal juices are formed, and food cannot be digested. When a child is very tired, the system is too exhausted to do the work of digestion, and nitrogenous foods (such as meat or eggs) taken then are positively harmful, as they only decay. If at mealtime a child is cross simply because he is hungry, feeding will help put him in a happy mood, conducive to digestion. Otherwise, it is better to give only a small quantity of easily digested food, such as fruit juice, thin gruel, vegetable broth, toast, milk.

Sufficiency. This applies to the total quantity of energy and fuel foods, or what is technically called caloric sufficiency; and to the quantity and proportions of each of the food elements, technically called a balanced ration. Careful studies of dietetic needs have been made within the last ten years, and the approximate needs and conditions for different ages are now so well defined that adequate feeding need no longer be mere guess-work.

Caloric Sufficiency. A calorie is the measure of a unit of heat as an inch is a measure of a unit of space. One calorie[1] of heat is the amount that will raise the temperature of a pint of water 4° Fahrenheit. The amount of a given food, as of bread, that would furnish this much of heat when digested in the body is a one-calorie portion of bread, — $\frac{1}{10}$ ounce, or a half-inch cube. The total caloric requirement depends upon the amount of bodily heat and muscular energy needed by an individual. This will depend upon the individual's (1) weight, (2) age, (3) occupation, (4) health, (5) climate. The amount of outdoor life, clothing, the temperament, height, and personal idiosyncrasies will require individual variations from the average.

Daily Energy Requirements During Growth.

Part of this energy is needed to carry on the vital processes, such as circulation, secretion, digestion; during the waking hours, energy is needed for every muscular action, such as walking, dressing, talking, exercising.

---

[1] The large calorie is herein always meant.

Age in Years	Calories per Pound of Normal Body Weight	Calories per Day
Under 1 year	50–45	280–900
1–2	45–40	900–1200
2–5 inclusive	40–35	1200–1500
6–9 “	35–30	1400–2000
10–13 “	30–25	1800–2200
14–17 “	25–20	2300–3000
18–25 “	16–18	2000–3400

Proportions of Food Elements. To furnish what is termed a “balanced ration”, the protein, carbohydrate, and fat should each constitute, in the total calories for the day, approximately the following proportions: protein 10 to 15 per cent., carbohydrate 50 to 60 per cent, fat 25 to 35 per cent. To some extent the fat and carbohydrate are interchangeable, but a great excess of fat or carbohydrate produces indigestion, and great insufficiency of fat starves the nerves. Each gram (about $\frac{1}{28}$ ounce) of protein or carbohydrate furnishes four calories of heat; each gram of fat furnishes nine calories. Without sufficient protein, the child will not increase in growth. An excess of protein is no less injurious, as it cannot be stored in the body, but must be eliminated. Especially injurious is an excess of proteins containing purin-bodies, which produce urea and uric acid, thereby causing forms of kidney disease, gout, and rheumatisms. Excess of food, combined with sluggish elimination, produces putrefaction and fermentation in the intestine, resulting in auto-intoxication from the poisonous gases and chemicals, thereby inducing irritability, nervousness, langour, low resistance to germ diseases, colds.

In childhood and maternity a purin-free diet and one least likely to produce auto-intoxication is especially important.

A sufficient proportion of minerals is no less essential to life and health, although these are needed in minute quantities. Research in physiological chemistry has only recently discovered the vital significance of minerals. The quantities needed in childhood are not yet exactly known. Not only the bones and teeth but each cell and fluid requires mineral matter. The digestion and assimilation of food, the absorption of oxygen and the elimination of carbonic acid gas by the blood, the normal action of the heart, the generation of energy, the sensitiveness and reaction of the nerves, are all dependent upon the mineral supply in the system. There are no less than twelve, the principal ones being calcium, phosphorus, iron, soda, potash, sulphur. Calcium (lime) is especially needed for bones and teeth, phosphorus for growth and for nerve cells, iron for red blood corpuscles, soda for elimination of carbonic acid gas. The daily requirements for a man are:

Lime .7 gram; Phosphorus 2.75 grams; Iron .015 gram.

The allowance for a child should probably approximate this, and growing children probably need more of lime and phosphorus.

Minerals supplied to the body in vegetable and animal tissues or fluids have in some way been vitalized and made organic, so they are readily assimilated by the system. Mineral matter as dug from the earth and purchased at the drugstore is inorganic and is not assimilated either so thoroughly or readily.

Vitamines are equally essential in the food. These are subtle organic substances, as yet little understood, but necessary for perfect assimilation. Cooking, especially at a high temperature or for a long period, usually diminishes the vitamines in foods. This is one special objection to boiled, condensed, and powdered milk, patent baby foods, canned vegetables, canned, dried and salted meats. Children kept exclusively on such foods and boiled water do not thrive. Such a diet produces scurvy. Some fresh, uncooked food, such as raw milk, uncooked fruit or fruit juices, uncooked vegetables, is needed every day.

Laxative elements are also essential. These are (a) cellulose, found in the husk of whole wheat, and the fibers of vegetables and fruits; (b) water, found in milk, vegetables, and fresh or stewed fruits; (c) oil, found in cream, olive oil, and fatty nuts; (d) sugars, found in honey, molasses, dried fruits; (e) vegetable acids, found in fruits.

Hard foods, requiring work of the jaws, are needed every day, especially from nine months to seven years of age, while the first and second teeth are coming. Hard foods exercise and develop the jaws and teeth, and promote a good circulation through the jaws, mouth, and nose. They may be supplied by a chicken or chop bone wiped free of the cooked meat, or after nine months by hard crust, hard toast, zwieback, or educator crackers, given at one or two meals every day. Soft, mushy foods as a steady diet are injurious, not only because they fail to supply the needed exercise and circulation, but also because they cling to the teeth, and by fermenting produce their early decay.

Foods containing growth-producing principles are needed daily. Little is yet known of this factor. Some foods that, according to their chemical composition, would be considered valuable for growth, have been found on experimentation to be lacking in growth-producing properties; among these are corn, bacon, gelatine. Other foods have marked growth-producing results, and among these are milk, butter, eggs, whole wheat.

Foods Permissible for Children at Different Ages. Add each new food gradually, beginning with a mere taste and observing whether it agrees. Eggs, especially white, should be added cautiously, and discontinued if they cause swelling, indigestion, or diarrhea. Raw fruits must be selected with great care, neither overripe nor underripe, nor swallowed in lumps; they are prohibited in diarrhea.

10 months:

Milk
Oatmeal or whole wheat jelly
Rice or barley jelly
Zwieback, hard toast
Strained spinach
Prune juice, prune pulp
Orange juice, strained, diluted
Gelatine

12 to 15 months, add:

Baked potato
Junket
Egg yolk hard-boiled, grated
Coddled egg (½)
½ egg (raw) beaten in milk
Vegetable broth with purée of potato, carrot, or spinach
Stale whole wheat bread
Wheatsworth crackers
Olive oil
Cottonseed oil
White grape juice
Chicken bone or chop bone, cooked, meat scraped and wiped off

15 to 18 months, add:

Rice boiled or steamed (cooked 3 to 6 hours)
Oatmeal gruel (cooked 6 to 12 hours)
Butter
Baked apple (pulp)
Date pulp
Custards

18 to 24 months, add:

Purée (strained) of fresh peas, dried peas, celery, onions, corn
Hominy (ground) cooked 12 hours
Tapioca thoroughly cooked
Scraped raw apple
Ripe raw peach
Strained honey
Stewed dried peaches, mashed

2 to 3 years, add:

Young tender peas or lima beans, mashed
Asparagus tips, stringless beans, chopped fine
Tender carrots, beets, celery, minced fine
Mashed potatoes
Whole wheat breakfast cereal, corn meal, corn bread, bran muffins, macaroni
Poached egg
Stewed pear, mashed
Stewed chopped figs
Apple sauce
Oatmeal crackers
Purple grape juice

3 to 4 years, add:

Vegetables, diced
Sweet potatoes, mashed
Raw, grated carrots
Cornflakes
Shredded wheat
Seedless grape pulp
Grape fruit
Ground almonds, pecans, filberts

4 to 6 years, add:

Purée of dried beans, lentils
Heart of tender celery (raw or stewed)
Minced, tender lettuce
Stewed tomatoes
Stewed apricots, strawberries
Whole cooked prunes
Whole dates, figs (sterilized)
Ripe banana, scraped and mashed, or cooked
(occasionally)
Peppermints
Ice cream
Gingerbread
Sponge cake, molasses or sugar cookie

6 to 8 years, add:

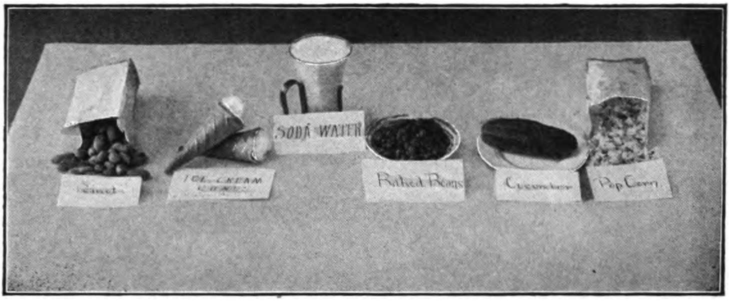
Eggs scrambled or omelet
American cheese (cooked)
Cottage cheese
Oysters (cooked)
Lentils, dried Lima beans
Raw tomatoes, cress
Peanut butter
Seedless raisins, chopped
Simple preserves, marmalade, jam
Raw pears, strawberries, raspberries
Cantaloupe, watermelon
Simple layer or loaf cake

Foods Injurious to Children. Never to be given under twelve years of age; not advised for any age.

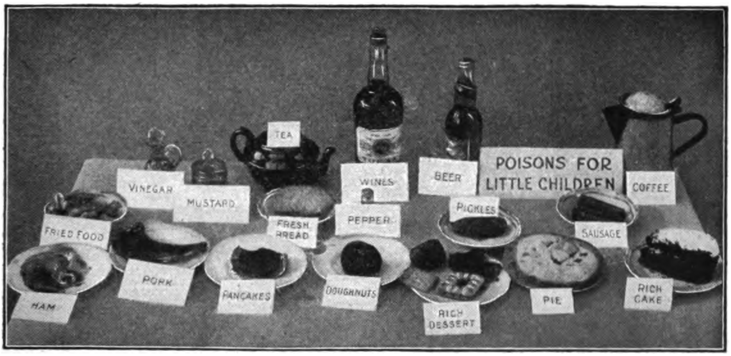
Stimulants: Coffee, tea, beer, wine. These furnish no food value but stimulate the heart and leave serious poisons that injure kidneys, liver, stomach, and nerves.

Condiments: Pepper, mustard, catsup, vinegar, pickles, horseradish. These are irritating to the delicate lining of the stomach; they overstimulate the appetite; they have no food value. Excess of acids extracts needed mineral from the body.

Meats: Pork roast or chops, ham, sausages, canned or dried meats and fish, corned beef, sweetbreads, kidneys, game. All are difficult of digestion.


ICE CREAM CONE
SODA WATER
Baked Beans
Cucumber
Pop Corn

Some Foods Especially Dangerous for Children Under Six.
Peanuts, ice-cream cones, soda water, baked beans, raw cucumbers, popcorn.


TEA
VINEGAR
MUSTARD
WINES
BEER
POISONS FOR LITTLE CHILDREN
COFFEE
FRIED FOOD
FRESH BREAD
PEPPER
PICKLES
SAUSAGE
PORK
HAM
PANCAKES
DOUGHNUTS
RICH DESSERT
PIE
RICH CAKE

Poisons for Little Children.
Not for vitality, beauty, clear thinking at any age.

Pastry: Pie, tarts, dumplings, cream puffs. The combination of fat and starch makes these difficult of digestion.

Rich Foods: Rich cake, puddings, sauces, preserves, and conserves. Excess of sugar or fat overtaxes the digestion and also spoils the appetite for simple, wholesome foods.

Fried Foods: Fried meat, potatoes, eggs; fritters, doughnuts, waffles, pancakes, French toast. Fat so combined with starch or protein delays, even prevents, digestion. Starch requires longer cooking than is possible in frying.

Fresh Baked (less than twenty-four hours old): Bread, rolls, muffins, cake. Rolls or muffins may be served warm by re-heating in oven. Fresh bread or cake forms a sticky mass, very difficult for the digestive juices to dissolve or penetrate.

Not permissible for children under six years:
All difficult of digestion.

Popcorn
Soda water
Ice cream cones
Peanuts
Baked beans
Rusks
Grocery cookies
Cucumbers
Cabbage
Whole nuts
Cherries
Berries

(Some physicians also exclude all cake, candy, ice cream, jam.)

Illnesses Produced by Wrong Feeding. Illness may be due to one of several causes. Wrong feeding is one fundamental cause of ill health and a direct cause of many forms of illness. An excess or deficiency of any one of the food elements, wrong combinations of foods, wrong habits of feeding, lack of cleanliness or purity, improper cooking, may all produce illness.

The general ill health and low vitality from wrong feeding may be due to:

(a) Auto-intoxication, from putrefaction of food in the intestine because of constipation, or from excess of purins;
(b) Excess of acid in the blood, due to excess of acid-forming foods or deficiency of alkali-forming foods;
(c) Malnutrition or anemia, due to insufficient food, or to lack of some food element; frequently due to lack of fats or minerals.

While the exact relation between wrong feeding and some of the specific forms of illness is still a moot question, some of the probabilities now tentatively held by many physicians may be indicated in a general way, as in the following table:

- "Colds":
  - Overfeeding, especially of protein or sugar
- Colic:
  - Irregular feeding
  - Overfeeding
  - Food taken too rapidly
- Constipation:
  - Lack of fruits and green vegetables
  - Lack of cellulose
  - Lack of water
  - Irregular feeding
- Convulsions:
  - Solid food at too early age
  - Food difficult to digest
  - Constipation
- Gastric indigestion (nausea):
  - Indigestible combinations, *e.g.* fried foods, milk with acids
  - Excess of sugar or starch
  - Excess of fat
  - Irregular feeding
- Headaches:
  - Constipation
  - Indigestible combinations
  - Excess of sugar or purins

- Intestinal Indigestion:
  - Excess of protein
  - Excess of cellulose
  - Excess of carbohydrates
- Kidney Disorders:
  - Excess of purins
  - Excess of acid-forming foods
  - Excess of salt
  - Excess of sugar
- Nervousness:
  - Irregular feeding
  - Auto-intoxication
  - Constipation
  - Excess of acid-forming foods
  - Excess of sugar or meat
  - Insufficient fats
  - Insufficient minerals
- Rheumatism:
  - Excess of purins
  - Deficiency of minerals
- Rickets:
  - Lack of vitamines
  - Lack of minerals
  - Lack of fats
- Scurvy:
  - Lack of vitamines
  - Lack of minerals
- Summer Diarrhea:
  - Unclean food, especially milk
  - Underripe or overripe fruit

Digestion. In the process of digestion, foods are not broken down into simple chemical elements, as nitrogen, hydrogen, oxygen, but into simpler yet still very complex compounds, as organic minerals (lime, phosphorus, soda), simpler sugars, fatty acids, emulsions, soaps; and the proteins into their many forms of amino-acids and (if these are inherent) purins and uric acid. Soluble minerals, simple sugars, and many drugs are quickly absorbed from the stomach directly into the circulation. Water passes into the small intestine in five to twenty minutes. The solid portions of mother's milk complete their stomach digestion in about two hours, cow's milk and other easily digested foods in two and a half to three hours, under favorable conditions. Digestion is continued in the small intestine, where about four hours are required for further digestion; the soluble portion is absorbed into the circulation, and the indigestible remainder, with waste cell material and bile, passes into the large intestine. There the journey is very irregular and slow, requiring from ten to twenty hours. The longer the delay, the greater the fermentation and putrefaction, and the accumulation of putrefactive bacteria and poisonous gases; the poisons, which are constantly being absorbed into the system, produce auto-intoxication. About half the solid waste is bacteria and waste cell tissue.

Food Composition. Every one who is responsible for the feeding of children should be thoroughly acquainted with the different food substances and the composition and value of common foods. For practical purposes of dietetics, foods are analyzed into their content of protein, carbohydrate, fat, mineral, cellulose, water. Some foods contain only one or two of these elements; other foods contain them all.

1. Protein foods are those that contain nitrogen; their special use is to build new body cells (for growth) and to replace waste of tissue; they also furnish energy. Proteins differ in value according to the number and the kinds of amino-acids in their composition.

Foods containing high percentage of protein:

Eggs
Milk
Cheese
Cereals
Almonds
Peanuts
Peas
Beans
Lentils
Fish
Lean meat

2. Carbohydrates (sugars and starches) furnish bodily heat and muscular energy.

Foods containing high percentage of starch:

Potatoes
Rice
Cereals
Tapioca
Macaroni
Farina

Foods containing high percentage of sugar:

Sweet fruits
Dried fruits
Beets
Carrots
Honey
Maple syrup
Molasses
Barley sugar
Cane sugar

Starch digestion begins in the mouth by the action of the saliva and is completed in the intestines. Starches are changed to a form of sugar. Excess of carbohydrates is stored in the liver or as fat through the body.

3. Fats furnish energy and heat.

Foods containing high percentage of fat:

Cream
Butter
Egg yolk
Olive oil
Cottonseed oil
Nuts (except chestnuts)
Meat fats

4. Minerals are found in grains, in fruit, green vegetables, milk, eggs, meat.

Calcium and phosphorus are furnished in high percentage by:

Grape juice
Orange juice
Rhubarb
Maple sap
Milk

Calcium, phosphorus, and iron are all supplied in high percentage in:

Spinach
Celery
Peas
Lima beans
String beans
Apples
Prunes
Peaches
Pears
Dates, raisins
Whole wheat
Whole cereals
Egg yolk
Lean meat (except calcium)

While milk contains only a low percentage of iron, it furnishes a high proportion of the day's supply in children's diet, because of the total quantity used.

Valuable mineral material in many fruits and vegetables is just beneath the skin. It is dissolved into the water if these foods are boiled. The mineral matter is conserved by baking, or stewing, or steaming, by cooking without paring, or by using the water in which they are boiled.

The mineral matter is in the germ and the husks of grains. Refined foods, such as white flour and sugar, polished or puffed rice, processed barley and corn meal, cream of wheat, cornstarch, sago, from which the husk has been removed, have been robbed of their mineral matter. The whole ground grains and brown sugar retain the minerals.

5. Water, a necessary part of all tissues, constitutes about sixty per cent. of the body weight. It promotes circulation of the blood and other internal fluids, dissolves poisons, aids elimination of waste through urine, feces, and perspiration. Water is best taken half an hour before meals, and at the close. If taken with the meal, it should be only after food in the mouth has been swallowed, that it may not interfere with the action of the saliva upon the food. Ice in water makes it too cold for the stomach, and unless artificial, is apt to contain dangerous impurities. Water should be sipped, warmed in the mouth before being swallowed, and not more than one glass taken at a time. Water is supplied in:

Milk
Cocoa
Broths
Fruit juices
Fruits
Green vegetables

Water constitutes about 65 per cent. of meats, 80 per cent. of fish, 90 per cent. of fresh fruits and vegetables.

6. Cellulose. The indigestible cellulose and fibers in food furnish a bulk of waste which stimulates the intestines to muscular action. Supplied in:

Whole wheat
Whole cereals
Prunes, dates
Figs, raisins
Fibrous vegetables as celery, spinach, onions, carrots, beets, peas, beans
Skins of apples, pears

Cellulose is lacking in concentrated foods, as cheese, nuts, sugar, butter; refined foods, as white flour, cream of wheat, cornstarch; in liquid foods.

Laxative Foods:

Figs
Dates
Prunes
Orange
Apple
Raisins
Peach
Plum
Rhubarb
Grapes
Whole wheat cereals
Whole wheat bread
Whole wheat crackers
Corn meal
Bran muffins
Peanut butter
Pecan nuts
Gingerbread
Molasses
Honey
Onions
Spinach
Olive oil
Cottonseed oil

Purin Bodies in Common Foods. Purin bodies are found in some protein foods. Purins are uric-acid

Foods Containing High Per Cent. Purins[1]	Grains Per Pound	Foods Containing 2 Grains or Less[1]	Purin-free Foods[1]
Sweetbreads	70	Peas	Milk
Liver	19	Potatoes	Cheese
Kidney.		Onions	Butter
Beef.	14–7	Carrots	Flour
Pork	8	Turnips	Rice
Chicken	9	Parsnips	Macaroni
Veal.	8	Asparagus	Tapioca
Salmon.	8	Rhubarb	Sugar
Halibut	7	Spinach	Cauliflower
Mutton	7	Dates	Cabbage
		Figs	Lettuce
		Codfish (4)	Strawberries
		Flounder	

---

[1] S. I. Hall: "Purin Bodies."

forming. The poisons of purins are believed to be productive of gout, rheumatism, migraine and periodic headaches, bilious attacks, catarrhs, neurasthenia, and general ill-health of an indefinite nature.

Acid-forming and Alkali-forming Foods. The blood contains some acids and some alkalies. For physical efficiency, the balance should be slightly alkaline. In the process of digestion minerals are oxidized into their chemical constituents of acids or alkalies. An excess of acid interferes with the normal alkalinity of the blood and secretions, prevents the normal absorption of oxygen and elimination of carbonic acid gas by the blood, hinders the work of the white blood corpuscles, irritates the nerves, lowering, therefore, the resistance and vitality, and irritates the kidneys. In the dietary, care should be taken to include alkali as well as acid-forming foods.

Acid-forming:[1]	Alkali-forming:[1]	
Meat	Milk	
Eggs	Fruits	
Grains	Vegetables, especially:	
Rice	Spinach	Lettuce
Tapioca	Celery	Cress
Sugar	Potatoes	Radishes

The Question of Meat. Some authorities on dietetics now advise against giving meat in early childhood. Wiley and Mendel advise waiting until about four years, Sherman and Lorand until about eight.

The following objections are made to meat in children's diet:

(1) It has a high percentage of purin bodies, which the child's organism is less fitted to dispose of.

(2) It is acid-forming to a high degree.

(3) "Meat proteins are much more susceptible to

---

[1] H. C. Sherman: "Food Products."

putrefaction in the intestine, giving rise to absorption of putrefactive products which are more or less injurious (producing ‘ auto-intoxication ’) than are the proteins of most other foods.”[1]

(4) It is stimulating to the flow of gastric juice, especially the extractives, which are found particularly in meat juices, meat broths, beef tea. As an acid-forming food it is stimulating, and easily irritating, to the nerves, and therefore is disadvantageous with nervous children, or when the nervous system is yet highly sensitive, as it is in early childhood.

(5) Carnivorous animals, such as the cat and the dog, do not permit their young to have meat until the teeth are developed. Meat given experimentally to young kittens produced convulsions.

(6) It is an expensive form of protein. Beef juice contains chiefly the stimulating extractives, and a slight quantity of iron.

(7) Protein in milk, selected vegetables, and (usually) eggs, is more easily digested; and iron can be supplied by selected vegetables and fruits.

The following table gives approximately the comparative value of a100-calorie portion of beef juice (requiring 3½ pounds of lean beef) and an equal bulk of milk.

	QUANTITY	CALORIES	PROTEIN[2]	FAT[2]	CARBO-HYDRATE[2]	LIME[2]	PHOSPHORUS[2]	IRON[2]
Beef juice .	14.1 oz.	100	19.6	2.4		.015	.46	.003
Milk . . .	14.1 oz.	276	13.1	15.9	20	.649	.832	.0009

The meat at twenty-two cents a pound costs seventy-seven cents; the milk at ten cents a quart costs five cents. One pound of meat will give little more than one fourth of this food value; one ordinary serving (2 ounces) only 3 per cent. of the above values.

---

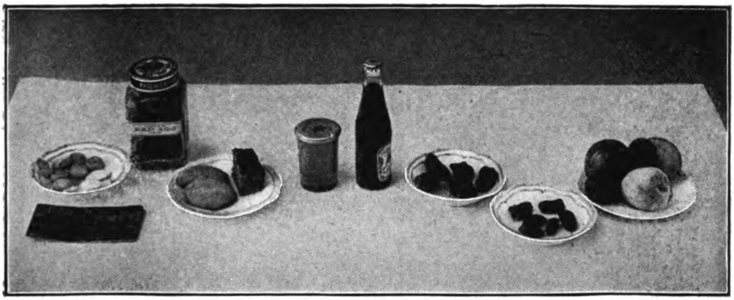
[1] H. C. Sherman: “ Food Products.”

[2] Grams.

Physicians, on the other hand, more often advise meat, especially for the iron and the stimulation to digestion.

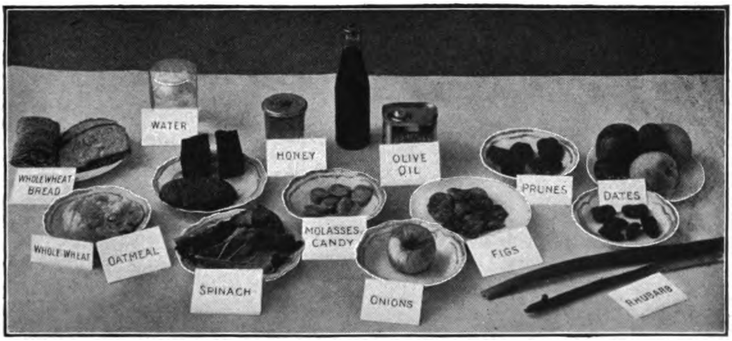
The Question of Sugar. Sugar is a concentrated form of fuel food. Children need much of fuel foods, but this can be given in the form of fats and starches as well as sugar. Sweet easily spoils the appetite for plain, more wholesome foods, and gives a sense of sufficiency before the needs of the body have been satisfied. Children whose taste has been spoiled by sweetened food are more likely to show a distaste for wholesome vegetables. Sugar taken between meals or in excess at meals is irritating to the sensitive lining of the stomach. Sugar excess causes fermentation in the stomach and intestines, overtaxes the liver, reduces the normal alkalinity of the blood, produces nausea, headache, biliousness, irritability, nervousness. It injures the teeth by causing mouth acidity, which produces tooth decay, and by causing distaste for simple lime-containing foods. The peevishness and irritability of children after an overdose of candy is very likely due to the indigestion and the hyperacidity of the blood, which irritates the nerves.

Cane sugar and candy lack the mineral matter found with sugar in the natural syrups, fruits, and vegetables. The necessary amount (and it is small) of sugar should therefore be given to young children in the form of fruits, at the close of the midday meal. It is advantageous to the child's efficiency and contentment not to have candy or ice cream under four years of age, and he will thrive without them until ten years. When allowed, they should be given only in slight amount as a dessert at the close of dinner, and not between meals.



Wholesome Sweets at Suitable Ages.

Homemade peppermints, sweet chocolate, barley sugar, sponge cookies, molasses cake, honey, maple syrup, prunes, figs, dates, plums, apples, peaches.


WATER
WHOLE WHEAT BREAD
HONEY
OLIVE OIL
PRUNES
DATES
WHOLE WHEAT
OATMEAL
MOLASSES CANDY
SPINACH
ONIONS
FIGS
RHUBARB

Laxative Foods.

To be selected, appropriate to age.

Wholesome Sweets[1]

Honey
Maple syrup
Sweet fruits:
  Oranges, Apples
  Peaches, Plums
  Seedless grapes
  Dates, Figs
  Seedless raisins
  Prunes

Simple pure candy
Molasses candy
Peppermint wafers
Milk chocolate
Barley sugar
Simple homemade cake
Sponge cake
Gingerbread
Molasses or sugar cookies

Rational Dietary. A rational dietary for children should meet the following requirements:

1. Total calories per day, computed for the age, weight (normal); modified by the activity, season, health, of the individual child
2. Balance of protein, fat, carbohydrate: Protein 10-15 per cent; fat 25-35 per cent; carbohydrate 50-60 per cent.
3. Purin-free or low in purins
4. Minerals supplied, especially lime, phosphorus, iron, soda, potash
5. Vitamines supplied by some uncooked or fresh, slightly cooked foods
6. Laxatives furnished by cellulose, water, oils, sugars, vegetable acids
7. Hard foods, requiring gnawing and chewing
8. No irritants or artificial stimulants, e.g. pepper, mustard, vinegar, condiments, alcohol, beer, tea, coffee
9. Combination of food carefully arranged:

a. Some alkali-forming
b. Milk not served with acids, as tomatoes, oranges, apples, apricots, peaches, lemon juice
c. Agreeable proportion of liquids and solids
d. Flavors combined that taste well together
e. Variety slight at one meal (3 to 6 items); wider range from day to day

---

[1] Adapted to age. See pages 163-5.

Wholesome Sweets[1]

- Honey
- Maple syrup
- Sweet fruits:
  - Oranges, Apples
  - Peaches, Plums
  - Seedless grapes
  - Dates, Figs
  - Seedless raisins
  - Prunes
- Simple, pure candy
- Molasses candy
- Peppermint wafers
- Milk chocolate
- Barley sugar
- Simple homemade cake
- Sponge cake
- Gingerbread
- Molasses or sugar cookies

Rational Dietary. A rational dietary for children should meet the following requirements:

1. Total calories per day, computed for the age, weight (normal); modified by the activity, season, health, of the individual child
2. Balance of protein, fat, carbohydrate: Protein 10–15 per cent; fat 25–35 per cent; carbohydrate 50–60 per cent.
3. Purin-free or low in purins
4. Minerals supplied, especially lime, phosphorus, iron, soda, potash
5. Vitamines supplied by some uncooked or fresh, slightly cooked foods
6. Laxatives furnished by cellulose, water, oils, sugars, vegetable acids
7. Hard foods, requiring gnawing and chewing
8. No irritants or artificial stimulants, *e.g.* pepper, mustard, vinegar, condiments, alcohol, beer, tea, coffee
9. Combination of food carefully arranged:
   a. Some alkali-forming
   b. Milk not served with acids, as tomatoes, oranges, apples, apricots, peaches, lemon juice
   c. Agreeable proportion of liquids and solids
   d. Flavors combined that taste well together
   e. Variety slight at one meal (3 to 6 items); wider range from day to day

---

[1] Adapted to age. See pages 163–5.

10. Cooking:

a. Albumen (milk, white of egg) slightly coagulated
b. Cereals and starches thoroughly cooked
c. Fats not overheated (below smoking or scorching point)
d. Fats not mixed while hot with starches or sugars (gravies, sauces, fried foods, pastry), or with protein (fried eggs)
e. Vegetable cellulose removed, or divided, according to the development of the digestive system of the child

Table for Hours of Feeding

Age	No Feedings	Intervals	Hours	Addenda
12 to 24 months	4–5	4 hours	6, 10 A.M., 2 P.M.	Fruit juice 8 A.M. Dinner 2 P.M.
2 to 3 or 4 years	4	4 hours	6:30, 10 A.M., 2, 5 P.M.	Do.
3 or 4 to 9 years	3	4½–5 hours	7:30 A.M., 12, 5 P.M.	Fruit juice 6:30 A.M. Dinner 12 M. Milk or fruit 3:30 P.M.
After 9 years	3	4½–5½ hours	7:30 A.M., 12, 6 P.M.	Do.

Differences of social, economic, and climatic conditions will naturally lead to differences of usual rising hour and general day's régime. The above schedule is consistent with the environment represented in the daily schedule on pages 124, 125.

A special schedule should be made out for the individual child, according to his environment and special needs. Certain fundamental principles must be followed, in varying this schedule. (1) Regular times for meals; (2) intervals between meals; (3) heaviest meal at midday; (4) interval before bedtime; (5) interval before bath.

To make out a dietary for a given individual.

1. To compute the total calories required for one day, (a) take the normal weight for the age, sex, height (see appendix), and (b) multiply this by the calories required per pound of body weight. (Table, page 160.)

Use the minimum calories for youngest, maximum for oldest in each age group. A child of active temperament requires more calories than a phlegmatic child of same age and weight. Factors indicating a liberal allowance of calories are outdoor life, cold weather, vigorous exercise, or a child under normal weight. A smaller allowance is indicated by indoor life, little activity, hot weather, or a child over normal weight.

2. Compute the number of these total calories for protein (15 per cent. of total calories), fat (25–35 per cent.), carbohydrates (50–60 per cent.).

3. Make out a tentative day's dietary, in 100-calorie portions, and add or deduct portions until the total of computed calories is approximated; a difference not to exceed 10 per cent. is allowable. (Table, page 160.)

4. Analyze these portions (see appendix), and compare with computed amounts (2 above) for balance of protein, fat, carbohydrate. Differences not to exceed ten per cent. are allowable. For compound foods, as custard, purée, analyze each of the ingredients.

5. Analyze for lime, phosphorus, iron.

6. Check for alkali-forming foods, vitamines, laxatives, hard foods.

7. Divide into meals. The heaviest meal should come in the middle of the day.

8. Note the method of preparation suited to the development and condition of the individual.

The making of a well-balanced and organized dietary for a day requires several hours of careful calculating. It is therefore the part of wisdom, as well as economy of energy, to carefully make out a dietary for six or seven days, that there may be balance in each day's ration, and a wide range of variety from day to day; and to preserve these for reference. By measuring out 100-calorie portions of common foods for a few days, the student comes to recognize these quickly, and the assembling of a meal comes to have all the zest of a game.

Illustration of Method in Making out a Dietary.

Age: 4 years	Activity: Out-of-doors
Sex: Boy	Season: Winter
Health: Robust	Temperament: Active
Height: 39 inches	

1. Normal weight: 35 pounds; Calories per pound: 38; Total Calories: 1330

2. Estimated Calories: Protein, 200; Fat, 465; Carbohydrates, 665

3.–5. **Analysis of Day's Food**

Food	Quantity (Uncooked)	Calories	Prot.	Fat	Carby.	Lime	Phos.	Iron
			Cal.	Cal.	Cal.	Grams	Grams	Grams
Grape juice . .	5 T	75			75	.016	.03	
Milk	1½ pt.	500	95	260	145	1.195	1.515	.0017
Oatmeal . . .	1 T	25	4	2	19	.007	.054	.0002
Bread (whole wheat)	2 slice	200	30	10	160	.032	.32	.0012
Butter	1½ cube	150	1	149		.004	.006	
Crackers (Wheatsworth)	1	25	4	5	16	.004	.061	.0003
Rice	1 T	50	5		45	.004	.085	.0004
Potato	½ med.	50	6		44	.009	.083	.0007
Peas (fresh) . .	2 T	50	14	2	34	.016	.12	.0008
Egg	1	74	24	50	0	.044	.175	.0014
Apple sauce . .	1 apple	100	3	7	90	.022	.05	.0005
Dates	3	50	1	4	45	.01	.01	.0005
		1349	187	489	673	1.363	2.509	.0079

6.–7. Feedings, 4. Hours, 7:30, 10:00 A.M., 12:00; 5:00 P.M. Day's menu: (See menu for child 2 to 4 years, page 181).

8. Method of preparation: For first teeth; vegetables diced; whole dates, prunes.

Typical Menus For Different Ages[1]

I. Twelve to Fifteen Months

Calculated for 21 pounds at 45 calories = 945 calories

		Calories	Vita.	Alka.	Lax.	Hard
A.M.						
6:00	1⅓ glass warm milk	150	s	s		
8:00	orange juice	75	s	s	s	
10:00	oatmeal jelly	25				
	1⅓ glass milk	150	s	s		
	⅓ t top milk	5	s	s		
P.M.						
2:00	⅓ potato, baked	25		s		
	1 t top milk	15	s	s		
	⅓ slice bread, toasted	50			s	s
	prune pulp	100	s	(?)	s	
	1⅓ glass milk	150	s	s		
5:30	oatmeal jelly	25				
	1⅓ glass milk	155	s	s		
	small slice zwieback	25				s
	Totals as analyzed	950				

	Calories			Grams		
	Prot.	Fat	Cbhy.	Lime	Phos.	Iron
Calculated:	142	331	473			
Analyzed;	145	333	472	1.622	2.293	.0043

Vitamines may exist in some degree in slightly cooked foods.

[1] t = teaspoonful
T = tablespoonful
s = supplied

II. Fifteen to Twenty-Four Months

Calculated for 26 pounds at 42 calories = 1092 calories

		Calories	Vita.	Alka.	Lax.	Hard
A.M.						
6:00	2 glasses warm milk . .	200	s	s		
	1 Wheatsworth cracker .	25			s	
8:00	orange juice	75	s	s	s	
10:00	oatmeal gruel . . . : .	50				
	2 glasses milk	200	s	s		
	½ slice toast, whole wheat	50			s	s
P.M.						
2:00	½ coddled egg	37	s			
	¼ baked potato	25		s		
	1 T spinach	10	s	s	s	
	¼ slice bread, whole wheat	25			s	
	¼ T butter	25	s	s		
5:30	oatmeal gruel	50				
	½ slice toast, whole wheat	50			s	s
	1 Wheatsworth cracker .	25			s	
	2 glasses milk	200	s	s		
	Totals as analyzed . .	1047				

	Calories			Grams		
	Prot.	Fat	Cbhy.	Lime	Phos.	Iron
Calculated:	164	382	546			
Analyzed:	177	386	484	1.647	2.592	.0068

III. Two to Four Years

Calculated for 35 pounds at 38 calories = 1330 calories

		CALORIES	VITA.	ALKA.	LAX.	HARD
A.M.						
6:30	grape juice	75	s	s	s	
7:30	¼ serving oatmeal . . .	25				
	2 glasses milk	200	s	s		
	½ slice toast, whole wheat	50			s	s
	½ T butter	50	s	s		
10:00	1 glass milk	100	s	s		
	1 Wheatsworth cracker .	25			s	
12:00	½ potato baked	50		s		
	1 T peas	50		s		
	1 egg coddled	74	s			
	1 T butter	100	s	s		
	apple sauce	100		s	s	
	½ slice bread, whole wheat	50			s	
P.M.						
5:00	rice (unpolished)	50				
	date pulp	50	s	s	s	
	2 glasses milk	200	s	s		
	1 slice zwieback . . .	100			s	s
	Totals as analyzed . .	1349				

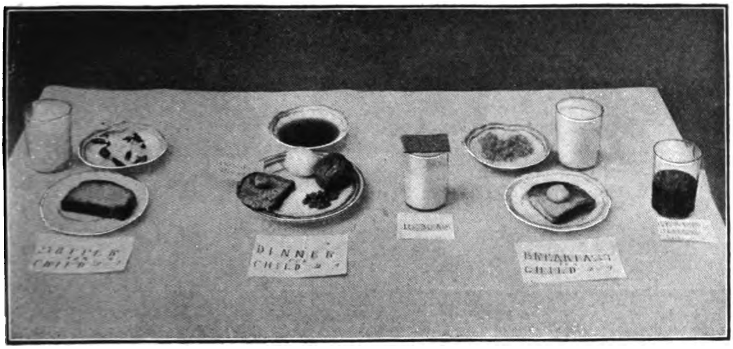
	CALORIES			GRAMS		
	PROT.	FAT	CBHY.	LIME	PHOS.	IRON
Calculated:	200	465	665			
Analyzed:	187	489	673	1.363	2.509	.0079

IV. Four to Six Years

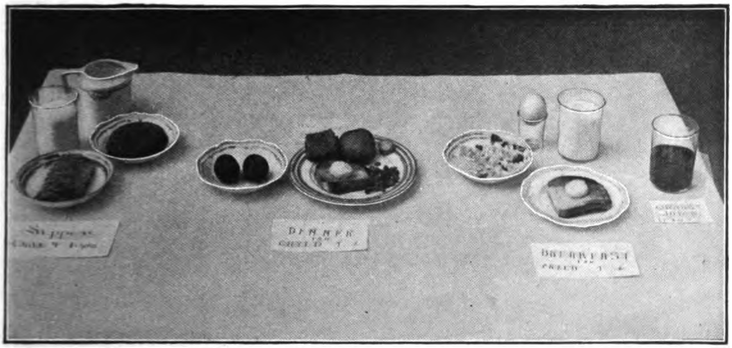
Calculated for 40 pounds at 37 calories = 1480 calories

		Calories	Vita.	Alka.	Lax.	Hard
A.M.						
6:30	orange juice	100	s	s	s	
7:30	rice	50				
	chopped figs	50	s	s	s	
	2½ glasses milk	250	s	s		
	1 slice toast, whole wheat	100			s	s
	butter	75	s	s		
12:00	lima beans, fresh	50		s		
	2 T spinach	25	s	s	s	
	potato, boiled in skin	50		s		
	chicken	25				
	1 slice bread, whole wheat	100			s	
	butter	100	s	s		
	2 plums	50	s	(?)	s	
P.M.						
5:00	½ shredded wheat	50			s	
	2½ glasses milk	250	s	s		
	molasses cookie, hard	100			s	s
	Totals as analyzed	1475				

	Calories			Grams		
	Prot.	Fat	Cbhy.	Lime	Phos.	Iron
Calculated:	222	518	740			
Analyzed:	208	481	791	1.557	2.760	.0109


SUPPER
DINNER
CHILD
BREAKFAST
CHILD

Day's Menu for Child Two to Four Years.


Supper
DINNER
CHILD
BREAKFAST

Day's Menu for Child Four to Six Years.

V. Six to Eight Years

Calculated for 47 pounds at 33 calories = 1551 calories

		Calories	Vita.	Alka.	Lax.	Hard
A.M.						
6:30	orange juice	100	s	s	s	
7:30	whole wheat cereal . . .	100			s	
	1½ glass milk	150	s	s		
	1 slice toast, whole wheat	100			s	s
	½ T butter	50	s	s		
	soft boiled egg	74	s			
	½ fig	50	s	s	s	
12:00	½ portion macaroni . .	50				
	1 T cheese, cooked . .	100				
	4 T string beans . . .	25		s		
	lettuce, oil, lemon juice .	55	s	s	s	
	1 slice bread	100			s	
	½ T butter	50	s	s		
	raw apple	100	s	s	s	
P.M.						
5:00	1 shredded wheat . . .	100			s	
	1 cup milk	100	s	s		
	1 cup custard	150				
	1 slice toast, whole wheat	100			s	s
	½ T butter	50	s	s		
	Totals as analyzed . .	1604				

	CALORIES			GRAMS		
	Prot.	Fat	Cbhy.	Lime	Phos.	Iron
Calculated:	233	543	775			
Analyzed:	214	517	873	1.475	1.865	.0099

Care of Food. All food should be kept covered, protected from dust, bacteria, insects, odors, poisonous gases (from bad drainage in refrigerator or kitchen). Butter should be kept in oiled paper or covered by a salted muslin cloth.

Cooked foods should be quickly and thoroughly cooled, and then covered and kept in a cool place.

Milk requires the most painstaking care, as bacteria multiply in it very rapidly unless it is kept cool and clean. It should be kept in a seamless, non-rusting receptacle, covered from dust and insects (preferably with a clean, double muslin cloth that will admit air but keep out dust); and placed in a clean, odorless, ventilated place. If a refrigerator or clean, cool cellar, springhouse, or well is not available, a homemade refrigerator may be constructed, similar to the fireless cooker, that will require little ice. Or the bottle may be placed in a basin of cool running water and covered with a clean muslin cloth the edges of which absorb the water; if thus placed in a draft, the evaporation will keep the milk cool. In hot weather it should be pasteurized for children under six years, and at other seasons for children under four, unless certified.

Milk should preferably be bottled at the dairy for delivery. If delivered from cans it should be exposed as little as possible to the air and dust, the measures should be scrupulously clean, and it should be poured at once into bottles or jars that have been sterilized by boiling and that are covered from dust until filled. It should be immediately covered.

If milk is delivered in bottles, provision should be made for protecting these from dust, sun, and animals until they are brought into the kitchen. The bottles should be well washed in cool water, especially around the top and cover, before opening. The rim of the bottle should be wiped with a clean cloth and the cover replaced immediately after pouring.

Milk which has been warmed or which has stood uncovered outside the bottle should not be poured back or used again for the children to drink, as bacteria have multiplied in it very rapidly. It may be used for cooking.

Milk. The production of milk requires the greatest cleanliness. If a cow is kept, the dairy, utensils, methods of milking and caring for the new milk should conform to the standards set forth in the Federal and State Health Bulletins. If milk is purchased, inspection should, if possible, be made of the dairy and the methods of cooling and transportation. In the large cities, milk is now graded according to the degree of care and the cleanliness as indicated by the bacteria count. Certified or Grade "A" should be used for children under three years of age. Grade "A" is preferable, but Grade "B" can be used for children over two years. Grade "C" and loose milk are fit only for cooking.

The milk from a herd is more uniform from day to day than from a single cow. Holstein or Guernsey milk is preferable for children, especially for infants, as the lower fat content and softer curds make it more easily digested than Jersey milk.

Sterilized or condensed milk is less easily digested and less nutritious than raw milk, and is conducive to constipation. The high degree of heat to which they have been subjected has reduced the vitamines and affected the protein.

Milk may spoil even before it has soured. Pasteurizing delays souring but not spoiling. Unscrupulous dealers sometimes add preservatives to prevent souring. Such milk is dangerous. Clean, freshly soured milk is harmless, but should not be given to children under three except as buttermilk. With young children and babies, buttermilk can sometimes be retained and digested when sweet milk cannot be taken. The special tablets containing the Bulgarian bacillus should be used, and usually, with the whole milk, in making buttermilk for young children. These tablets may be obtained from the druggist.

Skimmed milk has all the value of whole milk except the cream. Whey contains the minerals, sugar and fats. Bottled commercial cream has a very high bacteria count and should never be used for children. Ice cream should be freshly made of fresh, pasteurized milk, with scrupulous cleanliness.

Principles of Cooking. Before food can be utilized by the body, it must be made soluble — changed into substances that are dissolved so they can pass readily through the walls of the food tube into the blood. In the digestive tract fats, carbohydrates, and protein must first be separated, as different digestive fluids are provided to act upon each of these. Cooking for children should (1) make foods easily soluble; (2) produce little mixture of protein, carbohydrates and fats; (3) improve the flavor, and (4) raise the temperature to about blood heat (98° F.), when served.

The degree of development of the digestive fluids, the stomach, and the teeth must be considered in preparing food for an individual child. In infancy the digestive system is undeveloped, lacking in digestive fluids, stomach small, and there is no provision for chewing.

Until nine months of age babies do not have digestive fluids for starch, or for protein except the curds of milk; their teeth are not yet serviceable for chewing, and solid food of any kind is so indigestible that it often causes convulsions, if given.

After nine months, starches thoroughly cooked and without cellulose may be given cautiously.

All food must be easily soluble until two years of age, that is, until enough of the first teeth have developed for adequate chewing of soft cellulose.

For children under 18 months, cellulose and fibers strained out of vegetables.

For children 18 months to 3 years (before first teeth are all cut) vegetables mashed or chopped fine; coarse cellulose removed.

At three years, all the first teeth (20) should be cut, and the child can chew the cellulose of vegetables and fruits.

For children three years (first teeth all cut) to 8 years (second teeth partially cut) vegetables diced, whole cooked fruits.

During the first two years of second dentition (from 6 to 8 years) the missing teeth make chewing less adequate, and care is needed to provide easily divided food. After eight years enough of the permanent teeth have been cut to permit fibers of meat in the diet.

Cooking for Children. Before beginning the preparation of food, wash the hands thoroughly and clean the finger nails. See that all utensils are scrupulously clean, as well as dish towels with which they are wiped. Use agate or enamelware for all acid fruits and vegetables, and a double boiler for milk. Do not use aluminum ware for acids or eggs, or tin for acids, as poisonous compounds would be formed. Taste food before serving, using a clean spoon which is not replaced in the food but immediately washed. Keep food uncovered as little as possible.

Milk. In heating milk always use a double boiler and do not let the milk reach the boiling point. Boiling hardens the protein and makes it difficult of digestion.

To pasteurize milk: put in sterilized bottles, stoppered with non-absorbent cotton. Place bottles in kettle with cold water coming to height of milk in bottles. Put cloth or paper in bottom of kettle and between bottles, to prevent breaking. Milk is advisably pasteurized by bringing water to 145° F. and maintaining at exactly this temperature for thirty minutes, either turning fire low or removing kettle from fire, leaving bottles in water for half an hour, or placing the kettle in a fireless cooker, or covering tightly with newspapers. Cool bottles quickly by placing in lukewarm water, then in cold water, then on ice, or where temperature of 45° can be maintained.

Toast. Use stale bread. Make in the oven, drying hard throughout, the outside then lightly browned in gas oven or over coals or an electric toaster.

Dried fruits. Sort carefully, remove blemishes, wash thoroughly in colander. Soak overnight in water to cover; bring to boil, and let *simmer* with low fire or in fireless cooker until soft. Add no sugar to prunes, dates, figs, seedless raisins, and little to peaches, apples, apricots. California prunes should be used, as they are sweeter and less acid. Honey may be used, instead of sugar, for sweetening other fruits. Soda should be added to tart fruits, as apricots. For children one to three years, make pulp by removing pits and mashing through fine colander (not tin). For children over three, dates and figs may be served uncooked, after thorough washing, or sterilizing for ten minutes in a colander over steam and then drying.

Cereals. Cereals require a high degree of heat for the first five or ten minutes, to burst the covering of the tiny starch cells, then long cooking at a moderate temperature. This applies to oatmeal, barley, wheat cereals, corn meal, samp, rice, tapioca, sago. A double boiler should be used and, unless a coal fire is available for a long period, a fireless cooker. The latter can be made in a few hours at a cost of less than half a dollar, by using a wooden box with a hinged cover, sawdust for packing, and asbestos paper for lining.

In cooking any cereal, have the water boiling in both the upper and lower parts of the double boiler. Put the upper part directly over the heat and let the water boil violently for a minute. Add salt in the proportion of 1 tablespoon to one quart of water. Pour in the cereal *very slowly*, so the boiling does not stop. Let this boil five minutes, shaking gently, then place in boiler and put into fireless cooker, or over low fire.

Gruel or porridge:

1 part rolled or flaked oatmeal or wheat to 2 parts water
1 part corn meal or rice to 3 parts water
1 part fine wheat or hominy, coarse oatmeal, tapioca or barley to 4 parts water

Cereal jelly is made by straining the gruel through cheesecloth or finest wire strainer.

Cereal water is made by using a smaller proportion of cereal — from 1 to 2 tablespoons to 1 pint of water, — and straining. It may be made from the prepared barley, wheat, oat, or rice flour, using 1 tablespoon of the flour, blended with 2 tablespoons cold water, and proceeding then as with the whole cereal, stirring occasionally, and cooking from thirty to sixty minutes.

Note that cereal water contains little nourishment and, unless made from the whole grains, little mineral.

The ready-cooked oatmeals and wheat cereals should be cooked not less than one hour for children.

The dry, ready-to-serve cereals are thoroughly dextrinized and easily digested if well chewed, and therefore as advantageous for children over two or three.

Eggs. Eggs are quite easily digested raw, strained through a fine sieve. Raw egg is usually laxative. They should be cooked merely until the whites begin to set and are like soft jelly. Or the grated yolk, after boiling twenty minutes, may be used.

To soft boil. Place in boiling water which is immediately removed from the fire; let stand eight to ten minutes. Or put into cold water in covered saucepan; bring to boiling point and remove saucepan from fire.

To poach. Grease the bottom of a small skillet with some fat. Put in boiling water with 1 teaspoon salt. Drop in egg from saucer, and turn fire low, or remove skillet. Let stand 2 to 5 minutes, until white is set. Remove with perforated spoon or ladle. Serve on toast which has been dipped in boiling salted water and slightly buttered.

Cocoa. For children four to eight years old, make cocoa weak, using only ¼ teaspoon cocoa to a cup of milk. Blend the cocoa with ¼ teaspoon sugar and 1 tablespoon boiling water. Add ½ cup of boiling water and boil for five minutes. A larger portion may be made at one time, and kept on ice. Heat the milk in a double boiler and add the hot cocoa to this. Do not let the milk boil.

Soups and Purées. For thin soups, take equal parts of milk and the vegetable water from cooking potatoes, rice, spinach, carrots, celery, corn, lima or string beans, peas. Heat in double boiler.

Purées are made by mashing and straining any of these vegetables, and adding milk.

The most nutritious thickening is given by adding cereal gruel, or raw egg beaten in just before serving, after removing from the stove. Thickening of flour or cornstarch requires cooking for half an hour. Flour in melted fat is indigestible.

Vegetables. Use fresh, tender vegetables. Sort carefully, removing bruised and blemished places. Wash or scrub thoroughly through two or three waters, using a colander. If canned, remove all immediately from container. For children under two years, potatoes should be baked, and other vegetables cooked thoroughly and put through a fine sieve, removing all cellulose. For children of two and three years, vegetables should be minced; for those four to eight years, merely diced.

Baked potato. Remove skin from two ends to permit escape of steam in cooking. Bake in hot oven until mealy — about forty-five minutes. Pierce with hot fork or break open slightly to permit escape of steam.

Boiled potatoes. Boil in skins to prevent loss of mineral nutrients. Put into boiling water; add 1 teaspoon of salt to each pint of water, and boil gently for half an hour. Test with a fork, and when mellow, drain off the water, remove the cover, and let the moisture evaporate. If very large potatoes are used, add a cup of cold water when the outside is cooked; this prevents overcooking of outside portion.

Other vegetables may be baked, steamed (cooked in a steamer), or stewed. The ordinary method of cooking vegetables by boiling in a large quantity of water removes the essential minerals and watersoaks the vegetables.

Dried peas, beans, lentils, should be soaked overnight, salted and boiled for fifteen minutes, then put into the casserole or fireless cooker and cooked from six to ten hours.

Young beets, string beans, lima beans, carrots, spinach, peas, asparagus, summer squash are best steamed until tender (from thirty to sixty minutes). They may be stewed by putting in a covered saucepan with just enough salted water to prevent burning, and with the water just boiling.

Onions should be put into boiling water with 1 teaspoon salt, ½ teaspoon soda, and a piece of charcoal to 1 quart of water. After cooking five minutes, pour off the water and add freshly boiling, salted water; after ten minutes drain again and put into salted boiling

T = Tablespoon t = teaspoon c = cup

3 t = 1 T
16 T = 1 c
2 c = 1 pt.

1 t = ½ oz.
1 T = 1½ oz.
1 c = 8 oz.

16 fluid oz. = 1 pt.
16 oz. by wt. = 1 lb.
1 oz. = 28 grams (metric)
2½ lb. = 1 Kilogram (metric)

Spoonful or cupful means level. Teaspoons vary in size.

water. Boil until tender — forty-five to sixty minutes. Leave the cover off to avoid odors. Spanish or Bermuda onions are mildest in flavor.

In serving vegetables, add a little cream for young children; omit sauces.

Serving. Let the child eat outdoors whenever possible. If indoors, have the room well ventilated and not above 68° F.

Until six years of age the child preferably should have his meals, at least dinner and supper, at separate hours from the adults. He will give better attention to his food, will not be tempted by adult food, and not subjected to the table conversation which is too often directed at him or not of interest.

A low chair and table is much to be preferred to a high chair, until six years; then a higher chair, comfortable for the dining table, with a foot rest, should be provided, to be cut down as the child grows.

Serve milk at blood heat (98° F.) to children under two years of age, and in cold weather for children to six years. Serve warm milk for cooked cereal.

The serving plate for children under three should be kept warm during the mealtime. Special children's plates are now procurable that have thermos qualities or that are kept warm by hot water.

Avoid any possibility of infection. For example: Do not return spoon or fork to child's food, or give to child, after you have used it yourself, or another child has used it. Do not blow into child's food; use some other means of cooling.

Cereals should be fresh cooked within twelve hours for children under two, and within twenty-four hours for older children. Baked potatoes and eggs should be fresh cooked for each meal. Vegetables, soups, and purées should be cooked within twenty-four hours.

Toast should be buttered when cold. If buttered hot, the fat surrounds the starch grains and makes their digestion difficult or impossible.

Cereal should be served without sugar or butter, which make digestion difficult and form a rich combination that spoils the appetite for simple, wholesome foods. Top milk may be added, and for children two years, chopped stewed fruit.

The digestive juices in the mouth have an important part in the digestion of starches, therefore every means should be used for the insalivation of starchy foods. Dry buttered toast or whole wheat cracker, for instance, eaten with cereal, necessitates longer chewing of the cereal. The saliva is alkaline, and its action upon starches is hindered by the presence of an acid; therefore acid fruits, such as apple sauce, should not be taken into the mouth at the same time as starchy foods, such as bread, crackers, or cookies. Bread and milk are more digestible when taken together, as the milk is thus divided into smaller curds. Milk from a glass should be slowly sipped, in small swallows; this is a very important habit to cultivate in small children.

The diet should be carefully selected and analyzed, carefully prepared and daintily served with the minimum portions to meet the child's needs. *With these conditions* a child should be trained to eat what is set before him, without argument, having a second helping of the simple foods to the limit of his caloric needs. Do not permit a child to be finnicky about his food. The tastes and food habits are formed in early childhood.

Cultivate a taste for vegetables by giving first in vegetable broths, and then gradually give a teaspoonful of the mashed vegetable.

If a wholesome food is refused on first offering at one meal, give that first at a subsequent meal and withhold more desired foods until this is taken. Keep dessert out of sight until other food is eaten. An occasional child is not able to digest some special food, as milk, eggs, strawberries, fish. Some children cannot digest plain milk but can take it in foods, as in broth, junket, custard, pudding.

Common faults and tendencies in the child to be guarded against are:

Insufficient chewing
Eating too rapidly
Drinking milk rapidly instead of sipping
Dawdling over meals
Eating with fingers
Carelessness about the dropping of food on table and floor
Unwillingness to try new foods
Unwillingness to eat vegetables
Preference for sweets and starches
Overeating of bread

Common faults of adults, in the feeding of children:

Overfeeding
Irregular feeding
Allowing child to choose or refuse food and become finicky
Giving too large a portion of bread and cereal
Too much mushy food
More than one quart of milk a day
Insufficient hard foods
Coaxing child to eat when not hungry or when tired or ill

School children should always have an adequate warm breakfast, with plenty of time to eat without hurrying, and a warm midday meal. If the school is too far away for them to return home, some provision should be made with the teacher, school principal, or near-by home, for one or two warm dishes.

Children under six years should always have the mother or other intelligent attendant with them during meals to train in careful chewing and drinking, neatness, courtesy, conversation. With children under four years a spirit of play may be brought into the feeding, especially with the less desired foods; this should gradually be dropped during the fifth year.

Utilize the opportunity for training in motor coördination and self-reliance. Babies can be given water from a spoon at one month, and can begin drinking from a cup at six months; thus trained, they will never acquire the bottle habit, and they can learn to feed themselves during the second or third year. The motor control and self-reliance thus gained are far more important than the messing of food during a few months. Let the children help clear their table (18 months); brush up any crumbs (2 years); bring in their own dishes and food (3 years); wash dishes (3 years); help with the cooking (4 years).

Use enamel cups, sauce dishes, and plates until at about three years the child can confidently handle dishes without breaking them.

The serving of food has the value of a religious ceremony and a social banquet, as well as the satisfying of physical needs. With intelligence and forethought it can be made of such significance, and a means of teaching reverence, courtesy, self-control of physical appetites, pleasant conversation.

CHAPTER X

THE EDUCATION OF THE LITTLE CHILD[1]

"Education should lead and guide man to clearness concerning himself and in himself, to peace with nature, and to unity with God; hence, it should lift him to a knowledge of himself and of mankind, to a knowledge of God and of nature, and to the pure and holy life to which this knowledge leads."

— F. FROEBEL.

"Between educator and pupil, between request and obedience, there should invisibly rule a third something to which educator and pupil are equally subject. This third something is the right, the best, necessarily conditioned and expressed without arbitrariness in the circumstances."

— F. FROEBEL.

"The mother, with her monotonous daily round of cares and tasks, wishes that she could give more time to instructing her children. She forgets that her industry, fidelity, cheerfulness, hope, courage, faith, reverence, calmness, kindliness, and courtesy, are all reproducing themselves in the minds of her children. This is education for health, vigor, power, and efficiency, not merely for learning. It builds up instead of puffing up."

— J. M. TYLER.

The Purposes of Education. Education is as comprehensive as life itself. The education of the child begins as soon as he is born. Every moment thereafter is bringing influences that are shaping his character and his mental life. The educator is the person who acts as a mediator between life and the child, selecting the environment and influences that will give the largest values, helping him utilize, discriminate, and interpret his own forces and those of the universe. The work of the educator is analogous to that of the physician or hygienist, who cannot give or increase life, but can help the individual find the conditions that will increase his own organic efficiency. Education by trial and error, which is the method by which the race has had to learn, is a slow, painful process. The purpose of education is to reduce the wastage of life through errors and to give all-around efficiency, valuable habits, vision (ideals, ambitions, perspective), and command of methods for continued learning. It should be a preparation for larger living, not merely for intellectual examinations or artificial tests.

---

[1] See Preface, page xiii.

Froebel, Hall, Dewey, Montessori. The following foundation principles are emphasized by these educational leaders:

1. The function of education, serving to meet vital problems and to increase both efficiency and richness of life
2. The comprehensiveness of education, dealing with the whole life of the child — his thinking, feeling, doing — during every moment of his life
3. The moral purpose of life and therefore of education
4. The self-activity of the child as the method of education
5. The daily life of the child in the home and family and with nature as the natural environment for his education
6. The interest of the child as the basis of the curriculum
7. The study of the child as furnishing the key to his interests, his development, his ways of thinking, feeling, doing; and therefore the key to the methods of education
8. The development of the child as an evolution, progressing through a series of ascending stages which, in the main, follow the same general order in all individuals
9. Adaptation of education for the individual child, according to his nature and needs

The stages of development, the study of the individual child, the outlines of the curriculum, and special methods in selected phases of education, are discussed in other chapters. The present discussion therefore is devoted to the principles of educational psychology and of pedagogy, — how to conduct the process of education.

Education, Instruction, and Training. Education, in the large sense in which the term is here used, includes three pedagogical processes: (1) instruction;[1] (2) training; and (3) education[2] in its narrower meaning, — the developing of the child's innate powers. Instruction is the easiest, but the most superficial and least valuable; development is the most vital and most difficult. Instruction is static; education is dynamic. Training is the method for habit-formation (which is a most essential phase of education through infancy and childhood), the method for drill and technical skill. The teacher must be able to discern when each of these phases should be utilized. In general, training should begin at birth, and habit-formation should be continued unremittingly until about the teens, although habits are fairly well fixed by seven years. During youth and adolescence, training is needed for acquiring of finer muscular and motor skill. Instruction, directly, is easily overdone, and the best general principle is not to give information that the child could obtain directly for himself by a reasonable amount of searching, use of his own observation, experimentation, or reasoning; and not to overload the child with a superfluity of unrelated information. Certainly he should not be crammed with a mass of facts in which he has no interest, much less those for which he has actual distaste. There is danger that the book will come between the child and the realities of life. Such instruction as is given should be in response to a real hunger or interest. Education, the developing of the self-activity of the child, should begin in the first few days of life, and should be naturally fostered through the careful selection of every factor in his environment as well as through consistent cultivation adapted to his stage of development.

---

[1] Literally "to put into" from the Latin *in* and *struo*.

[2] Literally "to lead out of" from the Latin *e* and *duco*.

The Biological Basis of Education. Education is possible only because the baby is born so helpless and plastic, with many instincts, with the nervous system great in its possibilities but incomplete in its development, and with few habits formed.

Every stimulus that comes to the child is carried by an incoming (sensory or afferent) nerve to the brain, either directly or by way of the spinal cord. The stimulus may come from an object, from an organic sensation within the body, or from a thought. That sensation or nerve impulse is carried to a nerve center in the brain or the spinal cord, and there is transferred to some one of the many outgoing (motor or efferent) nerves, which conveys the impulse to some muscle, producing a muscular action. For example: the rays of light from a shining, moving object are the stimulus to the child's eye, and the optic nerve carries this stimulus to a center in the brain. The little baby must receive this stimulus many times before he begins to interpret it. At a few weeks of age he will simply stare, attempting to coördinate both eyes, or later, to follow it with the movement of his eyes; later still, to grasp for it with his hand. The optic nerve is here the sensory or afferent nerve, bearing the sensation; the nerve to the eye muscle or the hand is the efferent or motor nerve. This circuit is what is meant by a sensory-motor coördination, also called by some authors a neuro-muscular coördination, or the reflex arc. Many hundreds of these coördinations are to be made in the course of each day.

The first time a specific sensation is conveyed to a center, it is problematic which efferent or motor nerve will carry the outgoing impulse, but the choice is of great significance, for a habit is thereby begun. The second time the same sensation is conveyed, it will be easier for the same outgoing path to be followed. Thus habits are formed. Each repetition fixes it more firmly and makes more difficult the forming of a new manner of reaction to that stimulus.

Every sensation and thought tends thus to express itself in action. The little child is therefore especially susceptible to suggestion. Inhibition is the intervention of a second thought or stimulus which sends a counter impulse that prevents the action. If the expression of the action is continually prevented, or if through weakness of will or low vitality the expression is deferred, or not made, the power to express may become weak, and the individual thus degenerate into a mere dreamer. In extreme cases this becomes a condition known as dementia praecox.

Nerves completely developed (and therefore efficient for functioning) are covered by a sheath of tissue which may be compared to the insulation cover of an electric wire. At birth, few, if any nerves involved in voluntary action or thought are completely sheathed. This process requires many years, some nerves becoming sheathed earlier, others later. A regular evolutionary order is apparently followed, those nerves that control the racially older sensations or movements becoming sheathed and mature before the racially younger. This is the biological basis of the stages of development, and of the manifestations of different interests. It is useless, often injurious, to attempt to train a muscle or an interest before the nerves are ready. When they are ready, ample exercise must be permitted; this is the nascent stage of that interest. If exercise is now neglected, the golden opportunity for its education is passed. For instance, there is a stage, from about ten months to six years, when the special senses, as hearing, touch, sight are ripening. This is the time for training in sense accuracy and discrimination. The child's spontaneous interests and activities furnish the best clue we now have to this development of nascent interests and the time for their exercise.

In the brain there are apparently special centers which receive the sensations from any one part of the body and which send back to that part the motor impulse. Thus there is a center for the arm, the hand, the fingers, another for the ear, another for the eye. Language has its special centers. This is the localization of functions in the brain. At birth these centers are undeveloped. In a right-handed child the language centers develop in the left hemisphere, and in the left-handed child in the right hemisphere. Ambidexterity is frequently found with stuttering and with low-grade mentality, and is not considered advantageous to foster.

At birth, also, there is little or no development of association fibers between the centers in the brain, or between related centers in the brain and in the spinal cord. These centers and the association fibers develop through attempted use, as the baby receives stimuli from without and attempts to respond. As a matter of experience, the child learns to associate the several qualities that are found together in one object, as the taste, odor, color, "feel", shape, of a piece of bread. He also associates with an object his emotional states at the time, as bread with the comfort of feeding, a hot iron with the smart of pain, a ball with playful moods, a church with awe or reverence, a thunderstorm with fear or confidence. These early associations become ingrained and remain with him throughout life or with great difficulty are supplanted; they form his prejudices, his basis of morals and religion, his subconscious self.

The reference of a stimulus from a spinal nerve center to a brain center, and its transference in the brain to a motor nerve, requires thought. Thought is necessary for mental development, but it would be very exhausting if every sensation had thus to be consciously responded to. Nature is always working out short cuts. When a response is uniformly through one motor nerve, and a sensation is therefore uniformly followed by the same action, the stimulus, instead of journeying to the brain, transfers to the efferent nerve directly from the center in the spinal cord, — that is, the action becomes automatic. Not only thought but time and nervous energy are thereby economized.

The time required between stimulus and response is the reaction time. In an individual of phlegmatic temperament the reaction time is slow; in the active temperament it is quick, often impulsive. By a tonic régime (involving cold baths, laxative diet, vigorous physical exercise) the too phlegmatic may be developed into more alert responsiveness. By a quieting, sedative physical régime (increased sleep, rhythmic exercises, freedom from stress) the too active temperament may be toned down. Other temperamental changes may be developed, especially during infancy and early childhood, while the nervous system is still plastic.

The nervous system needs the stimulus of environment for its development. If the eyes of a normal baby were bandaged and his ears stuffed with cotton, so he could receive neither sight nor sound stimuli, and his arms and legs were kept bound tight so he could not move, his mental development would be hindered. If too many or too severe stimuli are presented, the nervous system is irritated, confused, overworked, and development is retarded. The child himself will select from a normal environment the stimuli that he needs. Others should not be forced upon him.

Whatever stimulus is exerting the strongest impression will hold the child's attention and direct his emotions and action. If a child is himself absorbed with some normal object or interest, it is tactless to attempt to divert this to some imposed academic interest. If he is in physical discomfort, it is a waste of time to attempt to give him instruction until the discomfort is removed. On the other hand, if a discomfort cannot be removed, or if the object of his attention is morbid or unworthy, the supplying of a more attractive counter-stimulus (as the telling of an absorbing story or the observation of activities out of the window, or doing some other work with his hands) is the natural and constructive method.

The Psychological Basis of Education. Self-activity is the natural method of education. This is Froebel's term. Rousseau called it learning to do by doing; Dewey calls it education by development; Montessori's term is auto-education. Free play is the child's self-activity, when he chooses what he shall play, how, and with what implements. Montessori calls this work, when it is doing something useful or intellectually educative.

The chief guide in the child's self-activity is his interest. In this connection interest signifies not a passing whim or fancy but the child's needs, the inner urgings of his instincts, his nerves, and muscles. Probably no one can know so well as the individual child exactly what his needs and interests are at any given time. The best the teacher can do is to know the typical interests of children at the same stage of development, and then to supply an environment that will provide stimulus and the most valuable means for exercise. For instance, at the noise-loving stage, providing a great range of instruments, suited to his muscular development, that will give good qualities and range of sound, and accustom his ear to melodious sounds.

Liberty, as Montessori means it, is freedom for self-activity. Her meaning is often misinterpreted and distorted, as will be noted from the following statement, quoted directly from her " Method ": " The liberty of the child should have as its limit the collective interest; as its form, what we universally consider good breeding. We must, therefore, check in the child whatever offends or annoys others, or whatever tends toward rough or ill-bred acts. But all the rest, — every manifestation having a useful scope, — whatever it may be, and under whatever form it expresses itself, must not only be permitted, but must be observed by the teacher. . . . If any educational act is to be efficacious, it will be only that which tends to help toward the complete unfolding of this life. To be thus helpful it is necessary rigorously to avoid the arrest of spontaneous movements and the imposition of arbitrary tasks. It is, of course, understood that here we do not speak of useless or dangerous acts, for these must be suppressed, destroyed."

The child's life is a constant unity of physical-mental-spiritual, of thinking-feeling-willing-living-doing. Only for purposes of discussion should we attempt to separate these. In education there is danger of overemphasizing some one, especially the thinking, of neglecting the spiritual, the feeling and willing, and of ignoring the doing, the motor expression of the thought.

In teaching anything new, build on what the child already knows or is interested in or can do. Begin with simple processes and proceed by gradual steps to the more complex and difficult. The child thinks in concrete terms, therefore let his instruction and education be chiefly in concrete terms, at least up to nine years. Let his learning come through living experience, at first hand, so far as possible. Especially avoid mere forms of words, without meaning and appreciation. Cultivate initiative by following the child's problems, rather than by substituting your problems for his and thus leading him to depend upon others for such initiative.

It is a great responsibility of early education to cultivate and plant many centers of normal interest, both of thought and feelings. The wider the range of the child's normal interests and feelings, the greater the scope of richness in his life. Intensive development of interests has its period in youth and in later adolescence.

Any effort to force an interest is likely to result in a reaction against the subject; an effort to force any motor activity, as speech, walking, dancing, is likely to result in strain of muscles and nerves, and ultimate retardation. Too early an intellectual interest, of a bookish sort, needs careful watching, to see that it does not result in overstrain and later mediocrity. Such a child, especially of the nervous, slender type, may need to be diverted to wholly motor and outdoor interests, for the sake of his future good. Genius develops early, especially artistic genius, and needs much physical life to maintain a balance. Mental precocity often is not genius but a morbid development. Infant prodigies are not the ideal, and it is a false ambition to attempt to produce one. The mental powers should not atrophy, but they should be exercised in personal exploration, experimentation, construction, getting acquainted with the natural world, learning how to do motor work, and thinking leisurely on the countless problems that present themselves to the child's own mind.

Sensory and Motor Training. These begin almost at birth and should proceed much together. The sense of touch should be cultivated by having a variety of shapes and sizes to handle from infancy; sound by a variety of musical toys and agreeable noise-producing implements; color and form by varieties of color in toys and fabrics. Sense discrimination begins consciously in the second and third year, and the child should then have graded series of sizes, shapes, colors, and sounds, to compare, match, discriminate between, and arrange in order. The child should learn to discriminate direction of sound, to judge of distances and relative weights. Every possible advantage should be taken of material about the house and in everyday life; many simple games should be invented for testing of sense discrimination and accuracy. Taste and smell deserve but little attention. With a very sensitive child a limited amount of sense-discrimination work should be done; with a phlegmatic child much of such training may increase his sensitiveness. Sensation should never be stimulated as an end in itself but as a means to perception and action.

Opportunity for exercise, and the simple exercises given elsewhere, are all the child needs for motor training during the first year. During the second year he should be taught how to go up and down stairs, to feed himself; and in the next year to dress himself, the fastenings of clothing being in front or on the shoulder, and the apparatus adapted to his fingers, using snappers or buttons that he can manage. By teaching rhythm, as elsewhere directed, marching and skipping can be done as soon as the necessary muscles and nerves are sufficiently developed. Swimming can be learned at about four years. Muscles of trunk, limbs, and hands (the fundamental muscles) should be trained early; the accessory muscles — fingers, eyes — are not ready for fine adjustments and training until about seven years. Space and apparatus are the chief needs in motor education, with occasional help in technique.

Language. After the babblings of the first year, with their natural voice gymnastics, language becomes a matter of observation and imitation. Provide all through childhood accurate examples of articulation, grammar, and accent. The first impressions and speech habits are relatively fixed. " Baby talk " to the child, as incorrect articulation and pronunciation, may retard normal speech a year or more, and give incorrect words that will be a cause of embarrassment and cost great effort to eradicate later. At one year the vocabulary will include about four words. The child who hears a wide range of vocabulary and who has his share of stories, will naturally acquire a vocabulary of several hundred words in the second year and about a thousand in each succeeding year. Sentence formation begins in the second year and should be cultivated in the third. Sounds incorrectly given by four years should receive special attention through brief imitation games, or have the attention of a specialist. The simplest rudiments of grammar may be given in youth, but correct grammatical speech is chiefly a matter of good examples in childhood. A large store of good adjectives and exclamations will be the surest preventive of slang. It is considered wiser to wait until about five years, when the child has mastered the accent, practical grammar, idioms and feeling for his native tongue, before cultivating intensive acquaintance with a foreign language. Such additional language teaching should, of course, be by conversation, songs, stories, games, following as closely as possible the natural method of learning the mother tongue. A few conversational phrases from a number of different languages will broaden the child's horizon. They should be given by some one who speaks the language with native accent.

Reading and writing are further use of language through symbols. They are slower forms of expression than speech, and their acquisition at too early an age impedes the freedom of thought and may retard the natural growth of thought and language powers. The eyes and fingers are not ready for fine work until about eight years of age. The child needs the outdoor life and first-hand experiences. As a matter of general observation, normal children with a natural environment, who do not enter the traditional school until about nine years, are able to proceed with children of their own age who have spent three years in school. The former children pick up reading at home, and have acquired the physical development, power of initiative, and expression, which enable them to cope fully as well as, if not better than the earlier entering children, with the problems of the school curriculum and of life.

Attention. This is chiefly voluntary during the first six years. The child is capable of intense and long voluntary concentration. Avoid, so far as practicable, interrupting the baby's staring or the child's absorption in his play. The power of concentration thus developed will remain to be utilized with any interest. For necessary situations later, instead of attempting to force involuntary attention in an uninteresting problem, the more pedagogical way is to find the phase of interest in the problem; then concentration will follow automatically. To divert attention, provide some more absorbing interest. The child whose attention is absorbed should be spoken to only when his attention is required. From babyhood he should be trained to look directly at the person who is speaking to him, to obey the first time spoken to, and to follow a direction or command promptly without its repetition.

Observation. Children naturally observe action and striking or unusual characteristics. The range of objects and qualities they observe may be greatly increased by suggestion and by increasing their range of interests. Definiteness and accuracy of observation are increased by drawing, painting, modeling, and by any creative work, whether making a wagon or telling a story, particularly after six years of age. Alertness of observation is increased by games requiring quick action for defense, protection, or to win a point, as in "Drop the Handkerchief." Observation of a larger number of details, as well as quickness and accuracy, are increased by asking for a description of persons or objects, of articles in a store window or on a table, or the imitation of a complex movement or series of movements seen only once.

Memory. Vividness of impression, variety of associations, and repetition are the factors in memorizing. The object or incident therefore must be clearly defined and must have the child's full attention. Fewer repetitions will then be required. Obviously the child's interest is a chief factor in attention. Energy is therefore economized by presenting data for memorizing when the child is interested and consequently ready for it. This applies very practically to formulæ, such as the alphabet, new words, mathematical tables. Rhythm and rhyme are easily memorized in childhood, and valuable facts put in this form will be retained longer. Such verbal memory is especially strong from two to seven years. This period should be utilized for teaching great thoughts, in poems and songs, especially those with emotional value, great songs and stories, chiefly in terms the child understands. The facts will be forgotten, but the emotions and ideals will remain with him through life. The period from nine to twelve is the time for much rote learning.

The greater the number of senses on which an impression is made, the greater will be the number of associations, and the more tenacious the memory of an object or incident. Different senses vary in the degree of retentiveness. Things heard about are forgotten soonest; things seen are remembered longer; things repeated or actions done remain longest in memory. A few repetitions on successive days are more effective than many repetitions on one day. Repeat as wholes, in units of stanzas or paragraphs, instead of lines or phrases.

Imagination. Develop vividness and wide range through exercise. In stories, put in colors and sounds. Ask questions about a story, to bring clear pictures of details. Encourage drawing, painting, and modeling of illustrations, and the dramatizing of stories. This is better training of imagination than to have stories already illustrated. Fanciful imagination is poetic, and some types of children are lacking in this. The child should be trained not only in visual, but also in auditory and motor imagery. Creation, whether of a story, song, building, picture, or game, requires and therefore trains imagination. Emotional imagination can be trained in part through dramatic play, in part through story-telling with this purpose. To be able to put one's self in another's place is a basis for sympathy, justice, and altruism. Between three and six years, when imagery is vivid and exact knowledge of the world is limited, many marvelous tales are told, with no intention of deception. This is normal and to be treated as fiction, in dealing with the child. Care should be taken that it does not develop into intentional deception for self-protection or vanity.

Reasoning. A regular and consistent régime is an early training in reasoning by association. Irregular or inconsistent régime brings confusion of thought. At five or six years of age, reason can be exercised by the allowing of choice, in situations where the child has some basis for passing judgment. Catering to the child's choice in food or clothing, on the other hand, tends to develop whimsicality and dissatisfaction; asking him what he would like, or if he wouldn't like, in any phase of his régime or play, has the same unfortunate result. If his choice is to be served, ask him directly to choose, and thereby let him use his own initiative in thought. Experimenting, taking things apart, are natural exercises in analysis, and therefore to be given widest possible opportunity. Building and constructing require synthetic reasoning, and finding the reasons for failures. Classifying of collections is an exercise in reasoning. The brain centers of abstract thought and reasoning are not developed until the adolescent period. Frequent exercises in judging what would be the best thing to do, or the best way to do, should be made a training in practical judgment in later childhood and youth.

Moral. Precepts and laws can be taught through stories, proverbs, and authoritative quotations. The child needs some of these, as a part of worldly wisdom. Much of this should be given during childhood. Every story and situation should be analyzed to see what will be its effect on the moral standards of the child. Moral action, however, further requires the training of the emotions, which are the springs of action, and the will, which holds emotions within the dictates of reason. The child's moral ideals will be gathered more from the character he sees about him, and the stories told him, than from precepts. Good examples and daily practice are the chief methods of teaching morals and developing strong character. Respect for property and law can be taught by providing the child with property of his own, and regulating his life by an orderly régime. The care of his own property and responsibility for its orderliness will augment this.

Social virtues should be inculcated from infancy. The baby's cry for attention is a deep-seated individualism. If encouraged, it makes later altruism more difficult. Self-reliance and self-dependence, for physical care and for amusement, should be systematically developed, instead of constant care, waiting upon, and amusement from others. Thoughtfulness for others can begin when the baby bites and slaps, though in play, by showing him how it feels; in the little child, by encouraging him to make little gifts or surprises as daily events. Courtesy, kindly criticism, loyalty to friends, freedom from gossip, he will learn by imitation of those about him. For training in generosity, he needs two or three other children about his own age, from the time he is three years old. Quarreling, which is an effort toward social adjustment, is to be expected throughout childhood, and many quarrels should be ignored, left to the children's sense of fairness and generosity to adjust. Tattling, bullying, and resentful criticism should be shown in their own ugly light and thus discouraged. Group games, which the children naturally begin to play at six years, are a good schooling in the practice of justice, fairness, and social coöperation. Civic responsibility should be cultivated from early childhood by the practice of things that the children can do, such as keeping the sidewalks clear of litter instead of scattering that about. Patriotism should be taught chiefly as a responsibility, rather than a form of excitement or vanity. International sympathy can be cultivated through sympathetic acquaintance with children of other countries, through pictures and stories, dramatizing of their ways, through personal acquaintance, either directly or by correspondence. The roots of international peace, or of strife and militarism, are planted in the nursery.

Emotions need training in expression, control, depth, and genuineness. Submission and easy contentment are not a virtue in childhood but a weakness. In a strong character, emotions are strong, and their expression strong, but needing guidance and poise. Any emotion, — for instance, love of country, of friends or parents, — should not be permitted to stop merely with the pleasurable sensation of excitement and

Learning Self-Reliance and Regularity.

At the School of Mothercraft Summer Camp.

emotional glow, but the child's attention should be called directly and also by stories to the necessity for putting a generous emotion into active expression, by doing some helpful deed, or by carrying responsibility. This is the completion of the reflex arc. Tantrums and temper should be prevented whenever possible by forewarning the child, for instance, that play must end when the next block house has been finished. The new adjustment of emotions and expectations is slower in the child than in the adult, and needs forewarning. Some children develop an unpleasant forwardness or gushing, the former an overdeveloped individualism, the latter a childish sensualism, both superficial. Meeting these with indifference and inattention will usually reduce them automatically. The child of very intense or poorly controlled emotions needs careful attention in a regular, outdoor physical régime, the daily nap, rhythmic exercises and games which train in relaxation, and constant examples of even-tempered, well-poised character. The fear that commonly develops in the third or fourth year may be somewhat forestalled by teaching confidence through walking in the dark, acquaintance with living creatures, trust in a kindly Providence. Many stories of bravery should be told in the fearsome period, and poetry or verses taught that inspire courage and confidence. Fearsome stories are a crime against childhood, although later childhood and youth may thrive upon them. Control of emotions is gained in part through determination of will, in part through change of attention; the latter is the more natural and pedagogical method. Sense of humor should be cultivated for its moral value in relieving tension and carrying the individual through emotional stress, as well as for giving a clearer view of comparative values.

Will-training includes exercise of free choice in matters not of mere taste or whim but of reasoning and moral choice; and of continued effort against the call of inclination. Stubbornness is a refusal to yield, notwithstanding the evident reasonableness or the greater moral value, and is evidence of a weak will. It is now recognized as immoral to attempt to "break a child's will", compelling him to yield without attempting to show him the reasonableness. The burden of reasoning and moral choices in daily life should be placed upon the child as rapidly as he is able to exercise this wisely and with firmness, and he should be praised for his good will and shown the weakness of failure. Confidence expressed in his good will, expecially when he is on his own honor, will strengthen this ability. Training in control of appetite for food, by regularity of meals, no eating between meals (especially of sweetmeats when on pleasure trips), the waiting at meals for the saying of grace and the serving of others, all strengthen the will for greater demands upon it in later years. Development of concentration in play and games is a training of will-power. Special exercises in motor balance and equilibrium, in endurance, in self-denial, can be devised as further will-training.

Eugenics and Sex Education. This is an education in social ideals and relations. Consideration for the child's own future children is an instinctive ideal that can be naturally fostered in early childhood, and thereafter accepted as matter of course. Modesty, self-respect, respect for his or her own person, needs to be cultivated from infancy, in all the details of physical care and régime. As childhood develops into youth, the expression of affection needs to be increasingly circuited into thoughtful deeds of service, and away from mere direct sense pleasure and expression. Social relations between boys and girls at all ages should be treated sensibly, without silliness, emphasis of class distinctions, or morbidness. In both boys and girls should be cultivated a spirit of reserve, of chivalry and helpfulness. With youth, this may naturally be based on the ideal (which needs the merest suggestion) of worthy preparation for the future home, and the treating of other boys and girls as the child would have his or her future mate meantime treated by others. The significance of real monogamic marriage should be made clear, in its greater confidence and happiness between parents, and especially in the better care and training of the children. The child needs to be provided with inhibiting and controlling ideals before the stress of adolescence.

The child's natural biological questions, which begin about three years, should be answered naturally, both poetically and scientifically. Through the study of plants, gardening, the care of birds and pets, enough of the principles of heredity, anatomy, and physiology should be given the child before seven years to satisfy his curiosity, to give him a scientific attitude toward reproduction before the development of sex-consciousness, and to enable him to classify the development of a new generation among the natural processes of nature, instead of overemphasizing and distorting its perspective. Emphasis should be placed upon the care of the young and forethought for their protection, rather than upon organs and processes. Scientific knowledge of biology gives necessary clearness of thought, but only training of emotions and will are effective for assuring conduct.

Economics. Thrift is taught by the toy bank, by the orderly care and repair of toys and clothing, the orderly saving of possibly useful odds and ends; in early childhood by a weekly allowance, even of a few pennies, with freedom in use, and with occasional discussions of what might be obtained with a stated sum. Promptness, accuracy, and thoroughness in obeying or in performing the tasks assigned in childhood, are preparation for industrial efficiency. In early childhood action is necessarily slower and movement awkward because of incomplete motor development. In later childhood a vision of engineering efficiency, a habit of working for reduction of time and energy cost, can be developed through competitions, direct reduction games or problems, discussions of the value of time and energy and of simple, fundamental ways for economizing. Through tracing the source of his own food and clothing, as well as through his own manual efforts, can be fostered respect for all labor and the ambition to work efficiently. Respect and appreciation for workers, especially those who serve his needs in the household, are developed chiefly through example of his elders.

Obedience. Commands and prohibitions should be the fewest necessary and chosen carefully. Given as a request or suggestion rather than a direct command, the form carries a sense of courtesy that develops sympathy, self-respect and more ready, whole-hearted compliance. Commands, when necessity requires, then have greater force. Any request or command should be given distinctly, definitely, kindly, firmly, with the requirement of the full attention of the child and complete, prompt obedience. Repetition of a command fosters inattention and disrespect for authority. Indifference to disobedience, yielding to teasing, permitting petty arguing, all foster evasion, falsehood, carelessness, disrespect for authority. Unnecessary, unreasonable, or inconsiderate commands develop contrariness, stubbornness, contempt, and weaken the child's sympathy and comradeship. Inconsistency in commands, discipline, or punishment, or dogmatic stubbornness that will not consider the possibility of a change in the command or allow any discussion, brings contempt. Use positive, affirmative suggestions, telling the child what to do. Studiously avoid negative discipline, prohibitions, dont's.

Discipline. The purpose of discipline should not be revenge or a cultivation of humiliation, or breaking the will of the child. It should be devised to lead the child to prefer the right; to think before he acts instead of acting merely upon impulse; to exercise his will-power and courage in obeying his conscience instead of following the line of least resistance by yielding to his whim, his appetites, or even to his instincts out of due season. Therefore a rational, consistent discipline must be well thought out for different typical situations before these arise, that it may be administered wisely, not impetuously or in anger. It must be just, firm, kindly, foresighted. As nearly as circumstances will permit, the child should learn through his personal experience and observation the consequences of action; and punishment should be, as far as practicable, a natural consequence of the act. Artificial rewards, especially in the form of material things as money, toys, candy, are demoralizing, developing a spirit of graft and discontent, dulling the moral and spiritual sense, and having the effects common to any artificial stimulants. Nagging, scolding, threats of punishment without its execution, cultivate a disrespect for all law and authority, as well as for the person thus weakly failing to exercise poise and authority. There is also a type of sentiment that easily becomes sentimentality, which is no less repugnant to the child. Cultivate the child's self-respect, self-confidence and ambition. Avoid calling him bad or naughty.

Discipline should be adapted to the child's temperament, to his stage of development, and to the particular offense. A sensitive, high-strung, imaginative child must be dealt with gently though firmly, with special care that his self-respect, his confiding, his expressiveness are not weakened. A sturdy, matter-of-fact, phlegmatic realist usually needs more concrete, vigorous, physical form of punishment to make him perceive the significance of events. The stubborn child may be benefited most by being given opportunity to prescribe his own punishment.

Some Natural Consequences as Punishments. Quarreling, disagreeableness, selfishness: being removed from play with other children. Temper: put quietly to bed, or left alone, or placed in bed with a cold cloth on the head; with some children, spanking, calmly administered. Biting, slapping or other personal injury: doing same to the offender, to demonstrate how it hurts. Impudence, vulgar words: mouth washed with soap and clean cloth. Lack of promptness: loss of consequent pleasure. Neglect in care of toys: temporary deprivation of toys. Careless work: repetition until satisfactory. Wanton injury of property: work, or giving of some valued personal property to pay for loss. Disobedience: putting to bed; deprivation of consequent pleasure.

Reprehensible and unnatural forms of punishment include putting child into dark closet; striking on head or hands; punishing in presence of others; social humiliation or other needless mental suffering; depriving of a meal (although bread and water may be substituted). Punishing without definite cause, or if the justice is not clear to the child, is immoral. Punishment should never be administered in anger but calmly, firmly, with a spirit of regret but inevitableness.

To be effective, punishment should follow promptly on the misdeed. Bedtime should not be a time for scolding or discussion of faults but of happiness and inculcating of ideals. To maintain due respect and sympathy for father, as well as for the mother's own self and authority, there should be no threats of telling father of misdeeds, or leaving punishment for him to administer.

The problem of discipline is reduced to a minumum when children have a regular, healthful physical régime and diet, freedom from unnatural excitement, abundant play space and material, consistent moral training from infancy. Many little pranks and minor misdemeanors should be overlooked. When, however, the child has committed a serious wrong, or when one form of misdemeanor (as lack of promptness) is becoming frequent, or when the child has evidently done something which he knows to be wrong, discipline should be prompt and definite.

Habits. Habits are formed by repetition of the same action, in the same way. The first time the response is made it makes a deep impression on the nervous system, and change from the first doing is most difficult. Every exception allowed or permitted causes a hesitation or doubt that delays complete formation of the habit. To prevent the formation of a habit, prevent the first doing. The first time not only establishes a path in the nervous system; it establishes a mental attitude of familiarity and ease with the action and its environment. To break a habit, break it off abruptly and completely. Every time the action is done, it is harder not to repeat it; if it is a moral problem the moral fiber is weakened by each yielding against conscience. A complete change of environment, calling for a new adjustment of action, is the greatest help in breaking an old habit. Some constructive outlet for the energy should be provided. The child's sense of humor or disgust are moral avenues of appeal in the formation of habits.

Habits of mental activity, of method of work, of attitude toward life and people, of moral action, as well as of motor action, are being formed from birth. Life is conserved by training in good habits from the start.

Religious. No phase of education is more important. Religion is a matter primarily of emotions and conduct, rather than of philosophical thought. Little children are religious, but their religion is naturally very different from that of the adult; they have much religious feeling and thought, but little respect for ecclesiasticism, creeds, rites, which mean nothing to them. The child's ideas of God are concrete, personal, related to himself, as is all his thinking. He naturally thinks of every object as being like himself, having power to think, feel, and do; therefore he is easily a nature-worshipper. Training of the religious feelings can begin in infancy, in the development of sympathy between parents and child, in confidence and trust in his parents (who represent Providence to him), in gratitude for their care, in obedience and respect for their authority, and in wonder and awe for natural phenomena. The child from four to nine years of age responds readily to examples and suggestion of reverence.

Training in the performance of religious rites, such as the saying of grace before meals, prayers, attendance at religious services, participating in religious worship, are motor habits readily acquired at about the same age, which then remain as lifelong tendencies. If neglected in this period, they are less likely to be formed later. Even the motor attitudes of worship bring some feeling of reverence and worship. Religious worship, however, is not to be forced. To compel a child to say a prayer or participate in any form of religious worship against his inclination will foster a revolt against all religion. When religious worship is a natural and sincere part of the family life, the child will naturally ask for a prayer to say, or for the privilege of attending a service, when this interest is ready for exercise. To allow a child to rattle off a prayer, or say it inattentively, flippantly, or to show off, or to permit him to treat any sacred place, objects, or rites flippantly, is to foster irreverence and weaken the religious sense. Service to God, to an ideal, to people, as an integral part of religion, is an association that is not instinctive, but one that the child needs to be taught by example, precept, and training.

The child's natural questions about the cause of natural phenomena, the purposes and meaning of life, the possibility and nature of death and immortality, the nature of God, provide opportunity in due season for the parent to answer these according to his own conscience. The child demands definite, positive answers, and has absolute confidence in the omniscience of the person who answers his questions. How to answer these so as to give the child a constructive basis for thought and action, and yet not to be so dogmatic that he will revolt when the questioning years of adolescence arrive, is a problem requiring tact and careful preparation.

Stories from Bible history, acquaintance with the geography, customs, individuals of the Bible, are of religious value because they develop centers of interest and a personal acquaintance with the Bible, the textbook of western religion, thus making it a living book which he will naturally read for its moral and religious content. Many Bible verses and hymns should be taught during childhood and youth. These should be very carefully selected to have some interest and content of meaning for the child at his given stage of development, although the depths of their meaning he can only appreciate after more life experience. There may be real danger of giving too early such significant quotations as The Lord's Prayer, the Ten Commandments, the Beatitudes, so that the words are memorized but the child never receives the impress of their full significance. Somewhere between six and twelve years they are probably most appreciated. Doctor Hall considers that to teach the child that there is a power which makes for righteousness at the helm of the universe, and that therefore right and wrong eventually have their own deserts, is one of the most valuable factors in moral training. Certainly the stimulus of religious inspiration, the inhibiting power of religious commandments, motives, and ideals, the fortifying of will-power by religious discipline and sources of strength, are foundations for strong, efficient, well-poised living.

Education, like Christianity, is a spiritual process with physical forms of expression. Just as church rites, ceremonies, and equipment are meaningless and wooden without the inner life, so are educational "systems", rules, and apparatus, without the spiritual vision and understanding of education. There is no virtue, for instance, in Froebel's gifts or Montessori's didactic material, or any other mechanical devices, merely as apparatus. The mechanical bringing together of the child and the apparatus, without skill or knowledge in their interpretation, is not educational; and such irrational though well-intentioned effort is unfair both to the child and to the inventor. No less unfair and superficial is the seizing upon some one principle and emphasizing it out of proportion to other principles; or misinterpreting, through lack of careful study, the significance of some principle, or the author's intent, as is so often done, for example, with Froebel's statement of play, Dewey's statement of interest, or Montessori's statement of liberty.

The preparation of the child's educators must begin many years before his birth, that they may be ready to meet this responsibility as soon as it comes. An adequate preparation should include: (1) careful study of the principles and purposes of education, that these may be discerned clearly and applied with consistency and discretion; (2) long schooling in habits which will fit them to be worthy examples in character, in social and mental traits, in tastes and languages; (3) some experience with little children in daily life, in order to learn to interpret and sympathize with child nature, to acquire some facility in their education and discipline, and to collect some fund of nursery lore.

CHAPTER XI

STUDYING THE INDIVIDUAL CHILD

"Would you know how to lead the child? See and observe the child; he will teach you what to do." — F. FROEBEL.

"The ideal which has animated all my own feeble educational endeavor, and without which I should be without hope in the world of pedagogy, is the reconstruction of education based not so much on existing conditions in society as on child-nature. It is one thing to fit the child for a preëxisting social condition, and a very different thing to develop all his own latent powers to their uttermost and trust to their development for all future reforms. Holding, then, as I do, that childhood has in it indefinite possibilities that are some realized, some repressed or crippled, nipped in the bud in a way for which home, school, and church must share responsibility, and that if every spring of possible knowledge and power were touched, even by the lightest suggestion at its nascent psychological hour, we should in a few generations develop a superior race of men, we have in this faith in the possibilities of childhood and youth the most central and impregnable of all the fortresses of optimism." — G. STANLEY HALL.

How to Study a Child. A complete study of the child includes his physical and psychological characteristics, personality, gifts, deficiencies, his heredity, environment, training. In studying a child it is of first importance to avoid carefully any stirring of his self-consciousness, which might lead to either morbidness, introspection, priggishness, or vanity. The necessary physical measurements should be made as naturally and impersonally as possible, without discussion. The physical inspections should be made incidentally, during the processes of the daily life, without comment.

Recording, except of measurements, should be done without attracting the attention of the child, — preferably not in his presence, and filed without his knowledge. The child's traits or characteristics should not be discussed in his presence. Psychological characteristics can best be studied under natural, usual conditions:

(1) in the child's play: what he plays; how he plays
(2) his stories: what he prefers or tells
(3) his handiwork, especially his drawing
(4) what he observes
(5) his questions

A Score Card for Home Use. The following score card has been especially prepared to meet the practical needs of the untrained layman and amateur in the intelligent observation and better understanding of normal young children. It does not attempt to include marked abnormalities. It is merely preliminary to a more detailed and scientific analysis by the specialist. Such a general score card is necessarily applicable only for certain ages. The following outline does not attempt to cover special development beyond ten years of age.

Physical Measurements and Inspection. During the first year the weight should be taken weekly, at the same hour, in order to bear the same relation to feeding, bath, elimination; other physical measurements and inspections should be recorded at least quarterly. In the succeeding years records should be made at least semi-annually and preferably quarterly. The person in charge of young children should observe daily the physical conditions, and be able to detect at once the special danger signals, or deviations from the normal.

Any person careful in details and accuracy can make these measurements and inspections, at least as preliminary to the specialist. Detailed directions are given in Pamphlet V, American Medical Association Press, and in "The Health Index of Children" (Hoag). For ordinary household use, the apparatus required includes a new, firm tape measure, yardstick, accurate beam scales, and cards for testing vision. For school or institutional work it is desirable to have also calipers, laboratory apparatus for taking heights, instruments for taking blood pressure, and a dynamometer for testing strength of muscles. Economic and social conditions, differences of race and heredity, will cause considerable variation among children of the same age.

Psychological Analysis. No generally accepted standards or tests have yet been devised for measuring psychological development. The standards developed by Binet and Simon for mental ability as one phase of psychological age, have been widely tested in this country but have not proven wholly satisfactory. American revisions are now being worked out. The outline here given does not provide standards for measurement, but depends entirely upon the judgment of the person making the analysis. During the first year a chronological record can profitably be kept of the psychological development, noting particularly each gain in motor control, every indication of increasing recognition of sense impressions, the development of speech.

Standards of normal and average conditions and development can be learned by

(1) observations of numbers of children of the same age.

(2) the study of published tables of measurements.

(3) published records, studies, and stories of children.

The Tables of Indications and Summaries have been added to assist in gaining a clear picture of the child's condition and the factors calling for special constructive measures, elimination, treatment, improvement, or development.

Physical Measurements[1]

Name________________ Age: Years_____ Months_____ Weeks_____
Height standing[2]________ In. ________ Under Average________ Over
Height sitting __________ In. ________ Under Average________ Over
Weight________ Lb.________ Oz. ________ Under Average________ Over
Circumferences: Head__________ Chest__________ Abdomen__________
Diameter of Chest: Anterior-posterior__________ Lateral__________
Chest Expansion______________ Lengths: Arm________ Leg________

Physical Inspections

General Appearance:	Robust	Anemic
	Vigorous	Languid
Posture, standing: (2)	Erect	Stooping
		Chest sunken
		Head forward
		Abdomen forward
Posture, sitting: (1)	Erect	Chest sunken
		Back curved
	On hips	On curve of spine
Gait: (4)	Normal	Waddling
	Elastic	Heavy
	Toe forward	Toe in
	Toe slightly outward	Toe outward
Head:	Shape normal	Box shaped
		Not symmetrical
	Fontanel closed	Fontanel not closed (after 18 months)
Hair:	Color	Scant
	Abundant	Rough
	Even	Brittle
	Fine	
	Coarse	
Scalp:	Clear	Scurf
	Pink	Dandruff
		Eruptions
		Vermin

---

[1] Lefthand column includes normal and desirable characteristics; righthand column includes abnormal or undesirable.

[2] Measured as length, child lying down, during first year.

Figures at right in parentheses indicate age at which observation may normally or profitably begin, if not applicable during first year.

Features:	Regular	Unsymmetrical
Eyes:[1]	Color	
	Clear	Muddy
	Sparkling	Dull
	Intelligent	Staring
	Normal	Crossed
		Protruding
		Squint
	Good condition	Inflamed
		Watery
		Discharge
		Frown
		Work held near
		Farsighted
		Nearsighted
		Headaches
Eyelids:	Normal	Swollen
		Inflamed
		Sore
		Discharge
		Styes
		Granulated
		Drooping
Nose:	Large	Small
		Pinched
	Bridge normal	Bridge sunken (normal during first year)
		Discharge
		Obstructions, *e.g.* adenoids
		Snuffles
Mouth:	Well-shaped	Ugly shape
	Large	Held open
	Small	Deformed by pacifiers or thumb sucking
		Breathes through mouth
		Canker sores
	Breath sweet	Offensive
Tongue:	Clear	Coated
	Normal	Protruding
		Swollen
		Tied

---

[1] Snellen cards may be used for testing vision.

Teeth:	Number	Delayed first teeth
		Delayed second teeth
		Prolonged retention first teeth
		Extra teeth
	Regular	Irregular
		Projecting
	Good condition	Discolored
		Tartar deposits
		Decayed
Gums:	Healthy	Pale
		Bleeding
		Spongy
		Swollen
		Receding
Throat:	Clear	Swollen
		Enlarged tonsils
	Strong	Subject to sore throat
		Coughs
Lips:	Full	Thin
		Swollen
	Ruddy	Pale
	Good condition	Sore
		Chapped
		Fissured
Chin: (2)	Normal	Receding
		Projecting
	Firm	Weak
Jaw: (2)	Firm	Weak
	Strong	
Ears:	Large	Small
		Projecting
	Normal	Misshaped
	Good condition	Sore behind ears
		Discharge
		Earache
	Hearing normal	Defective
Neck:	Normal size	Small
		Swollen glands
		Scars
Skin:	Free from blemishes	Rough
		Scaly
		Pimples
		Eczema (where located)

		Ringworm
	Clear	Muddy
	Ruddy	Pale
		Tanned
		Freckled
	Firm	Soft
		Puffiness under eyes
Muscles:	Firm (½)	Flabby
	Well developed (1)	Weak
	Especially	
	Back	
	Trunk	
	Grip	
	Leg	
	Complementary pairs balanced (1)	Unequal in balance
	Back and chest	
	Right and left of trunk	
	Right and left of neck	
	Right and left of back	
Back:	Straight	Curvature; anterior-posterior
		Curvature; lateral, to right
		Curvature; lateral, to left
Shoulders:	Erect	Stooped
	Square	Sloping
	Equal	Unequal (which lower)
	Blades flat	Projecting
Chest:	Expanded	Sunken
	Deep	Flat
		Shallow
		Barrel-shaped (after 1 year)
		Funnel-shape (breast bone sunken)
		Pigeon-breast (breast bone prominent)
	Symmetrical	Unsymmetrical
		Beaded ribs
	Good expansion (3)	Poor expansion

Abdomen:	Firm	Flabby
		Hard
	Normal	Distention
		Rupture at navel
		Inflammation at navel
		Rupture at groin
Arms and Hands:	Equal length	Unsymmetrical
	Normal	Enlarged joints
		Clubbed fingers
		Ambidextrous
	Right-handed (1)	Nails discolored
	Left-handed	Nail defects
Legs:	Equal length	Unequal
	Straight	Bowed
		Knock-knee
		Enlarged joints
	Ankles strong	Weak
Feet:	Arch normal	Flat foot (1½)
	Stands squarely (2)	Shoes run over: outer edge inner edge heels
	Well shaped	Toes pinched
		Swollen
	Unblemished	Callouses
		Corns
		Bunions
		Defective nails
		Excessive perspiration
		Chafed toes
Genitalia:	Normal	Inflamed
		Discharge
		Protruding of rectum
		Itching
		Buttocks chafed
Nerves:	Steady	Explosive
		Dull
		Fears: (specify objects)
		Irritable
		Restless
	Endurance	Easily fatigued
	Normal	General misbehavior
		Tantrums, hysteria
		Malicious destruction

		Bed-wetting
		Nail-biting
		Masturbation
		Headaches
		Convulsions
Motor Coördinations:	Steady (for age)	Retarded
	Sits alone (½)	Stumbling (3)
	Creeps (9 mo.)	Dropping things (3)
	Stands (1 year)	Speech defects (3)
	Walks alone (1½)	Spasmodic movements
	Controls eliminations	Twitching of eyes, face, muscles
	Urine (1)	Chorea (St. Vitus' Dance)
	Feces (2)	
	Holds own cup (1)	Paralysis (what muscles)
	Holds own spoon (1)	
	Runs (2)	
	Marches (3)	
	Claps to rhythm (3)	
	Feeds self neatly (3)	
	Dresses self (3)	
	Skips (4)	
	Uses scissors (5)	
	Normal	Other abnormalities
Nutrition:	Appetite good	Poor
		Hungry between meals
		Gluttonous
	Simple food relished	Overfastidious
		Abnormal appetites, *e.g.*, dirt, chalk
	Good digestion	Colic
		Regurgitation, eructations
		Gas in stomach
		Intestinal gas
		Nausea
Elimination:	Urine: Clear	Cloudy
	Straw color	Dark
		Bloody
	Odor slight	Strong
	Painless	Painful
		Irritating
	Normal quantity	Scant
		Excessive
		Retained

Elimination: (*Continued*)	Stools: Smooth (infancy)	
	Well-formed	Watery
	Mustard color (infancy)	Green
		Black
		Bloody
		Undigested curds
	Slight mucus	Much mucus
	Odor slight	Strong, offensive
	1 to 3 passages daily	Constipation (less than 1)
		Diarrhea
	Perspiration:	
	Slight	Excessive: head, under arms, cold sweats
	Odor slight	Sour
Sleep:	Quiet	Restless
	Sound	Wakes easily
		Dreams
	No. hours	Nightmares
	Nap	No nap
	Sufficient for age	Insufficient
Respiration:	Deep	Shallow
	Diaphragmatic	Chest
		Mouth breather
	Regular	Irregular
	Normal count	Rapid
		Slow
Pulse:	Regular	Irregular
	Firm	Weak
	Normal count	Rapid
		Slow
Circulation:	Efficient	Sluggish
		Cold hands
		Cold feet
Temperature:	Normal	Irregular
		High

The following examinations can be made only by specialists.

Physician or physical education director:

Heart, lungs, genitalia; liver, spleen; hernia; sinuses, ductless glands

Enlarged tonsils, adenoids; defects of palate; blood pressure; arteries

Spinal curvature or faulty posture (except marked); asymmetry of arms, legs, chest; flat foot
Osteopath, or physician or physical director with osteopathic training: displaced vertebræ; spinal irritation
Oculist (not optician): Defects of eyes (except marked)
Specialist: Defects of ears (except marked)
Dentist: Defects of teeth and gums (except marked)
Special chemist:
- Urine, for acidity, albumen, sugar, casts
- Feces, for worms, putrefactive bacteria
- Blood, for hæmoglobin, leucocytes, acidity, germs of venereal disease, tuberculosis.

Physical Habits

Sleep:	Bed alone	With another
	Outdoors	Indoors, scant ventilation
	Indoors, windows open	
	Regular bedtime hour	Irregular
	Quiet before bedtime	Excitement before bedtime
	Early	Late hour
		Given soothing syrups
Bathing:	Daily water baths	Less than one daily
	Number	Too frequent
	Kind	Too warm
	Temperatures	Not followed by cool
	Cool sponge	
	Air baths	Not given
	Sun baths	Not given
Feeding:	Regular hour	Irregular
	Prescribed intervals	Intervals too short
		“ “ long
		Eating between meals
	Simple diet	Injurious foods
	Balanced, rational diet	Dietary not analyzed
		“ poorly balanced
	Chews well (2)	
	Eats slowly	Rapidly
Motor Activity:	Encouraged	Restricted by clothing
		“ by carriage
	Outdoors or open-air room	Indoors; poor ventilation
	In raised, sanitary pen	On floor

Motor Activity: (*Continued*)	Toys sanitary	Unsanitary; allowed pacifier
	" harmless	Dangerous
		Surfeit
	Kept from crowds	Taken to stores (4)
		" " theater (10)
		" " movies (8)
Handling:	Moderate	Excessive
	Rational	Lifted by arms
		Tossed
		Rocked
		Jolted

History

Feeding:	Maternal nursing 9 to 12 months	Less
		More
	Cow's milk	Bottle: how long
		Patent foods (specify)
Illnesses: (state age, duration, permanent effects)	Bronchitis Convulsions Diphtheria Earache Eczema Epilepsy Measles Meningitis Mumps Rheumatism Rickets Scarlet Fever Scurvy Summer Complaint Tuberculosis Whooping cough Others	Subject to colds coughs, constipation, indigestion, nervousness, other illness Operations (age) for adenoids, tonsils, vaccination, others

Heredity

	MOTHER	FATHER
Nationality		
Race		
Height		
Weight		
Occupation		
Education		

Predispositions

	MOTHER	MOTHER'S[1] FAMILY (how many)	FATHER	FATHER'S[1] FAMILY (how many)	BROTHERS OR SISTERS (how many)
Marked mental gifts					
Nervous disorders (form)					
Alcoholism					
Tuberculosis					
Kidney disorders					
Cancer					
Pulmonary weakness					
Digestive disorders					
Blindness (form)					
Deafness (form)					
Living					
Dead					
Ages at death					
Causes of deaths					

Congenital Factors

Rank in birth (1st, 2d, etc.)

Age of brothers and sisters (in years and months): Living: At death: If had lived:

	MOTHER	FATHER
Age at birth		
Vigorous[2]		
Fair health[2]		
Sickly[2]		
Nervous[2]		
Use alcohol[2]		
Excess		
Moderate		
Use tobacco[2]		
Excess		
Moderate		
Use drugs[2]		
Excess		
Moderate		

---

[1] Parents, brothers, sisters.

[2] During year before child's birth.

Indications

Vitality and Endurance

Sound digestion
Normal eliminations
Normal temperature, pulse, respiration
Normal posture
Normal increase in height and weight
Nerves steady
Sleep quiet, sound, undisturbed
Diaphragmatic breathing
Good chest expansion
Large nose, unobstructed
Large neck
Eyes clear, sparkling
Lips ruddy
Teeth sound, normal number
Muscles firm
Skin clear, ruddy, elastic
Active, vigorous play
Good-humored, optimistic

Low Vitality

Susceptibility to colds, coughs
Susceptibility to contagious diseases
Sensitiveness to cold
Poor nutrition
Peevishness, irritability
Easily fatigued
Poor chest development
Shallow breathing
Pallor
Small neck, nose
Adenoids

Poor Nutrition

Underweight
Overweight
Indigestion
No appetite
Capricious appetite
Rickets
Languor
Peevishness
Delayed dentition
Ridges and notches on teeth

Auto-intoxication

Low vitality
Constipation
Eruptions on skin
Coated tongue
Offensive breath
Rheumatism

Rickets

Pallor, anemia
Retarded growth in height and weight
Enlarged joints at wrists and ankles
Muscles flabby; sometimes fat
Enlarged abdomen
Breastbone sunken or protruding
Round shoulders, bent back
Delayed dentition and walking
Large square head

Scurvy

Loss of appetite; pallor
Loss in weight
Swelling of ankles and knees
Swollen gums
Black and blue spots on legs
Cry of pain when handled
Pain when legs are moved

Nervousness

Restlessness, fidgeting
Disturbed sleep
Irritability, peevishness
Tempers, hysteria, tantrums
Spasmodic movements
Stumbling, dropping things
Falling easily (after 2 years)
Nail-biting
Bed-wetting
Masturbation

Defective Vision

Squinting
Frowning
Book or work held near face
Headaches
Nervousness
Irritability
Indigestion

Deafness

Persistent inattention
Directions persistently slighted
Disinterest in music
Incorrect articulation (after five years)
Dull, stupid expression
Head persistently held at one side
Complains of roaring in ears

Adenoids (or other nasal obstruction)

Small nose
Sunken bridge (after 1 year)
High arched palate
Mouth breathing
Chronic cold
Nasal voice
Stupid expression
Nervousness
Irritability
Imperfect articulation

Temperament

I. Active: quick, vivacious
Phlegmatic: slow, inert
Balanced
II. Positive: decisive, firm, determined, not easily influenced
Negative: vacillating, easily influenced, weak impression
Balanced

III. Intellectual: theoretical; tendency to think about things rather than to act
Emotional: acts upon impulse rather than thought; expends energy in emotion rather than action or thought.
Motor: eager to do, execute
(Note which tendency is strongest, which weakest)
IV. Optimistic: irrepressibly good-natured, cheerful, blithe
Pessimistic: easily gloomy, discouraged, unhappy, fearful, morose
Intermediate
V. Leader: initiative, positive, executive; inspires confidence, loyalty, and coöperation of colleagues
Follower: compliant, easily led, lacks initiative
Intermediate
VI. Original: creative
Copyist: reproduces others' ideas, principles
Intermediate
VII. Democratic: cordial, warm-hearted, hospitable, friendly, responsive
Autocratic: snobbish, inhospitable, reserved, exclusive
Intermediate
VIII. Progressive: open-minded, temperamentally a radical, reformer
Conservative: conventional, biased by public opinion, customs; suspicious of the new
Intermediate
IX. Mystic: sees spiritual phases of a situation
Realist: lacks imagination; has Yankee "common sense", practical
Balanced
X. Idealist: interested primarily in spiritual aspects and values
Materialist: interested only in material values, advantages, or disadvantages
Balanced
XI. Responsible: thoughtful, conscientious, good judgment
Irresponsible: absent-minded, heedless, foolish, unreliable
Intermediate
XII. Sees large aspects of problem or work
Concerned with details
Balanced
XIII. Self-reliant: ready to care for self; furnishes own initiative and encouragement
Dependent: relies on others for initiative, action, service, encouragement
Intermediate

XIV. Reaction Time:
- Deliberate
- Impulsive
- Rapid
- Slow
- Moderate

Psychological and Social Analysis

Mental Activity:	Alert	Slow
	Responsive	Dull
	Curiosity	Disinterested
	Experimenting	Inert
	Exploring	Listless
	Persistent will	Vacillating
	Interest in variety	
	Involuntary concentration	Flitting
	Feeling strong	Slight
	Imaginative (1)	Unimaginative
	Self-reliant (1)	Dependent
	Initiative	Inactive
	Profits by experience	Repeats same errors
	Normal intelligence	Backward
		Precocious
Thought:	Definite (2)	Vague
	Clear (2)	Confused
	Able to follow directions (1)	Unable
	Open-minded (4)	Self-satisfied
Attention:	Well focused	Superficial
		Flitting
		Dreaming
Concentration:	Involuntary, marked	Slight
	Voluntary, marked (4)	Slight
Senses:	Keen: Discrimination of differences	Undeveloped
Sound		
Rhythm		
Musical sound		
Color		
Beauty (pictures, sculpture, Nature)		
Rhyme		
Time: Day and night		
Yesterday		

Sense: Time: *(Continued)*		
To-morrow		
Season		
Year		
Historic time		
Imitation:	Marked	Slight
	Mechanical	Slavish
	Creative (3)	
Memory:	Retentive	Poor. Due to:
	Motor	Inattention
	Emotional	Lack of clearness
	Auditory	Lack of repetition
	Visual	
	Verbal	
	Logical	
Association of Ideas:	Marked	Slight
	Poetic (2)	Prosaic
	Logical (2)	Superficial
Imagination:	Vivid (1)	Lacking
		Overwrought
	Clear	Hazy
	Constructive (3)	Reproductive
	Resourceful (3)	Unresourceful
	Visual	
	Auditory	
Reasoning:	By association	Easily satisfied
	Logical (2)	Undeveloped
	Sensible (5)	Foolish
Judgment:	Sensible (6)	Foolish
		Erratic
	Requires proof (4)	Credulous
Tastes and Interests: (2)	What kind of Stories	
	Songs	
	Games	
	Handwork	
	Humor	
	How spends free time	
	Æsthetic: Marked	Slight
	Rhythm	
	Music	
	Color	
	Pictures	
	Nature	
	Poetry	
	Mechanics: Marked	Slight

	Watching	
	Examining	
	Contriving (1)	
	Philosophical: (3)	
	Marked	Slight
	(Seeks reasons for life, God, death, immortality)	
	Questions: Numerous	Few
	"What?"	
	"Where?"	
	"Why?"	
	"How?"	
	Waits for answer	Disinterest in answer
	Asks for information	For sake of talking
	Seeks further information	Easily satisfied
Self-expression:	Free	Reserved
	Natural	Self-conscious
		Affected
	Quiet	Ostentatious
	Artistic	Awkward
	Impressive	Weak, hesitating
	Charm	Unattractive
Speech:	Articulation perfect (4)	Imperfect (Note which sounds)
		Stammers
		Stutters
		Lisps
	Clear (1)	Indistinct
		Slovenly
	Forcible	Weak
	Fluent (4)	Reticent
		Halting
	Sentences complete (3)	Incomplete
	Grammar correct (5)	Incorrect (Note errors)
	Good vocabulary (5)	Limited vocabulary
		Slang
		Vulgarity
Voice: (1)	Soft	Loud
	Musical	Harsh
		Nasal
		Shrill
	Clear	Husky
	Vital	Drawl

Voice: (1) (*Continued*)	Range (Test with musical instrument)	Monotone
Emotions:	Strong	Dull
		Supersensitive
	Wholesome	Morbid
		Silly
	Deep	Superficial
	Poised	Explosive
		Moody
	Good control	Poor control
		Capricious
		Hysterical
		Eccentric
	Self-respect	Undue humility
		Pride
	Sense of humor	Prosaic
	Trustful	Suspicious
		Jealous
	Buoyant	Easily discouraged
	Courageous	Fearful
	Daring	Timid
	Cheerful	Melancholy, petulant
	Patient	Impatient
		Tantrums
		Easily imposed upon
	Contented	Dissatisfied
	Sensible	Vain
		Conceited
		Overaffectionate
	Enthusiastic	Apathetic
	Easily guided	Contrary
		Obstinate
		Rebellious
		Overdocile
	Deliberative	Impulsive
Social:	Loyal	Changeable
		Jealous
		Tattling
		Treacherous
	Generous	Selfish
	Sympathetic	Hard-hearted
		Silly
	Considerate of others	Thoughtless
		Criticizing
	Courteous	Rude

		Bullying
	Winsome, manly	Indifferent
	Gracious	Priggish
	Conciliatory	Ill-mannered
	Peacemaking	Quarrelsome
Manners: (2–3)	Charm	Indifference
		Repulsion
	Self-possessed	Self-conscious
		Bashful
		Taciturn
		Seeking attention
		Simpering
	Gentle	Aggressive
		Boisterous
	Respectful	Impudent
		Interrupting
		Contradicting
	Trained in conventions	Untrained, awkward
Industry: (4)	Industrious	Lazy, shirking
	Prompt	Dilatory
		Dawdling
		Procrastinating
	Thorough	Careless
	Painstaking	Indifferent
	Orderly	Disorderly
	Systematic	Erratic
	Thrifty	Spendthrift
	Economical	Extravagant
		Miserly
	Foresighted	Short-sighted
		Shrewd
		Easily imposed upon
Moral: (3)	Conscientious	Supersensitive
		Indifferent
		Callous
	Generous	Selfish
		Self-seeking
	Honest	Prevaricating
		Thieving
	Frank	Hypocritical
		Affected
		Sly
		Underhanded
		Tricky
		Brusque

Moral: (3) (*Continued*)	Mischievous	Destructive
	Teasing	Malicious
	Modest	Immodest
	Pure-minded	Uncouth
		Bold
		Brazen
		Unchaste
	Desires and appetites controlled	Uncontrolled desires and appetites
Will:	Firm	Weak
	Persistent	Vacillating
	Subject to reason	Stubborn
Motives that influence: (1)	Ambition	Fear of punishment
	Pain to others	Vanity
	Pleasure to others	Rivalry
	Ideal good (the right)	Selfishness
	Joy in right doing	Mercenariness
	Love (of others, cause, God)	Material reward
Response to reproof: (1)	Friendly	Sullen
	Rebounds	Sulks
	Acknowledges justice	Resentful
		Revengeful
Religion: (2)	Wonder	Apathy
	Awe	
	Reverence	Irreverence
	Sense of gratitude	Thoughtless
	Interest in theological questions	Disinterest
	Interest in religious ceremonies	Disinterest

Natural Gifts and Talents (5). Expressiveness in any of following:
Music: vocal, instrumental; rhythm, dancing, dramatics; drawing, painting, modeling, sculpture; literature, handcrafts, mechanics; nurturing, organizing, leadership

Ideals, Ambition, Expectations (8). Extent and nature of following:
Vocational: (Will change with periods of development, environment)
Professional: technical, artistic, industrial, manual
Educational: economic, social, family

Training:	Sturdy	Coddling
	Simple	Pampered
	Consistent	Inconsistent
	Sympathetic	Unsympathetic

Just	Unjust
Persistent	Intermittent
Scope for self-activity	Repressed
Intelligent	Irrational
	Emotional
Sincere	Superficial

Summary

Marked Traits, Physical and Psychological

Making for Efficiency: **Inefficiency:**
Need uprooting: **Correction:** **Developing:**
Making for social attractiveness: **Unattractiveness:**

Fundamental traits to be especially cultivated:

Energy
Expressiveness
Self-reliance
Persistence
Concentration
Imagination
Curiosity
Initiative
Orderliness
Responsibility
Self-control
Will
Altruism
Courtesy
Cheerfulness
Honesty

CHAPTER XII

A CURRICULUM FOR BABYHOOD AND EARLY CHILDHOOD

> "Knowledge has little or no intrinsic value in and of itself. Like light, knowledge is good not to see but to see by. . . . Ignorance is doubtless better than knowledge that does not make us better."
>
> — G. Stanley Hall.

> "Where children are fed only on book knowledge, one fact is as good as any other."
>
> — John Dewey.

> "If we seek the kingdom of heaven, educationally, all other things shall be added unto us — which, being interpreted, is that if we identify ourselves with the real instincts and needs of childhood, and ask only after its fullest assertion and growth, the discipline and information and culture of adult life shall all come in their due season."
>
> — *Ibid.*

The curriculum is to center, not about "subjects" in which the adult is interested but in

1. The child: (a) The phases of his life; (b) his age and stage of development; (c) therefore the vital interests characteristic of that stage; (d) his individual interests.

It will be modified in some degree by

2. The environment and what it provides of opportunity for physical activity, exploration, social relations, and for direction of interest.

The apotheosis of unnatural environment for the child is an expensive "high class" city apartment, no other children, one or more domestic servants, absentee parents who are interested and intelligent in everything but child care and training.

For the child under six years, and possibly under ten, the most educative environment, in every sense, is in the country with hills, valleys, woods, water, plants and trees, wild and domestic animals, other young children, the freedom of the kitchen, the necessity for personal physical care, and elders who enter sympathetically into his life, not obtrusively but intelligently, ready to give assistance when it is needed. With good library facilities, wholesome neighborhood recreations, and occasional trips to a city for its opportunities of art galleries, great music, wholesome plays, industrial activities, the simple home life and rural surroundings, even with mediocre teaching in a rural school, provide through early adolescence the environment most favorable for developing richness of life, greatness of personality, social efficiency.

As part of the environment which his guardians select are (a) his clothes, which have an influence both upon bodily health and on personality; (b) his furniture, which should be adapted to his size; (c) his toys and playthings, which are both a stimulus and a means for expression of his interest; (d) his pictures, books, and music, which are influencing his æsthetic taste, his emotions and his moral life; (e) his associates, both children and adults, who furnish the examples that he imitates constantly in speech, manners, actions, and whose personality subtly — and often unconsciously is molding his personality.

The scope of education is as comprehensive as life itself. The following aspects must therefore be developed in the complete education of the child:

1. Disciplinary: developing in the child his power to use efficiently his mental possibilities, — concentration, observation, memory, imagination, invention, judgment, his motor powers, his emotions, his will
2. Physical: training in habits and ideals of health, in skill and grace of motor coördinations

3. Cultural: bringing the child to a living interest in great literature, art, biography, history, and an appreciation and enjoyment of their values
4. Scientific: leading him to a knowledge and appreciation of the principles that control the world of nature and of mind
5. Social: training him to live harmoniously and serviceably with his fellows
6. Economic: fitting him to make his living by service rendered, of marketable value
7. Moral and religious: developing character, — the ideals and the realization of noble living, — which has its roots deep in the feelings and the soul, and depends upon these far more than upon mere thought, knowledge, and reasoning.

Intellectual and Play Interests

Birth to Six Months

Grasping
Mouthing
Staring
Watching bright objects, moving objects
Listening to sounds
Crumpling paper
Kicking
Rhythm
Crowing

Six Months to One Year

Handling
Mouthing
Looking at
Pulling
Shaking
Pounding
Producing noise
Creeping
Exploring environment
Hearing sounds, music, singing
Babbling
Imitating vocal sounds: vowels, consonants, singing
Animals, flowers, vivid colors
Ball, mirror
Rhythm

One to Two Years

Sensory experiences, motor coordination
Speech
Handling
Experimenting with touch
Tracing with finger
Walking
Exploring environment
Pouring
Filling and emptying

Building and knocking down
Hammering
Pounding, thumping
Throwing
Digging
Producing noise
Rhythm
Animals, flowers, chickens, bird in cage
Putting in and taking out

Curriculum

Sensory experience: Provide variety of shapes and sizes for handling; primary colors in objects both different and same shape; sounds, and objects for making sounds.

Singing of little tunes, chanting of music or poetry, by attendant while she works about near by, and while dressing, bathing, but not while feeding.

Motor experience: Freedom to move, — kick, roll, creep, climb, during waking hours; not tied in chair or carriage while awake, except for quarter-hour periods

Objects for grasping, pulling, pushing, during first year

Permit to assist in use of cup and spoon after nine months.

Provide door, drawer, lock and large key, wooden mallet, volley ball, for hand and arm exercise.

Provide low, short stair, ladder, swing, swinging rope, for second year.

Concentration: Do not interrupt staring, examination of objects, intensive activity.

Encourage continued looking, handling, listening, experimenting.

Memory training: Strict regularity of routine in feeding, giving of water, dressing, sleep

Motor, by gymnastic exercises performed each time in same order

Few pictures, songs, finger plays, given repeated short attention

Imitation: Pat-a-cake, waving good-by, other simple arm or hand movements

Consonant and vowel sounds

Cheerful, well-poised disposition

Reasoning: Reasons by association of circumstances, sequence of circumstances

Provide uniformity and consistency of sequences in handling and in daily care.

Language: Provide much spoken language, chanting and singing, after six months; repetition of sounds for baby's direct imitation. Cultivate clear, distinct, correct enunciation.

After twelve months, teach gradually names of most common objects, members of family, most common verbs, adjectives. (A diary record of sounds, words, phrases, and sentences is both interesting and of assistance in teaching and noting progress during first four years.)

Æsthetic sense: Quiet colors, simple furniture and decorations in nursery

Variety of forms and toys, harmonious gay colors, attractive forms, features

Vivid standard spectrum colors in toys, pictures

Some large colored pictures in nursery; artistic; distinct; babies, cats, dogs; primitive Indian drawings

Exclusion of ugly, vulgar, rude pictures, cartoons, toys, and music

Well-modulated voices in attendants

Rhythmic quiet singing or chanting, and rhythmic gymnastic exercises daily

Soft, simple rhythmic instrumental music once a day when possible

Wide range of noise-producing toys, not harsh or rasping. Some toys producing mellow, musical sounds

Emotions: Reduce fretting or crying from discomfort by keeping comfortable, with strict regularity, and attention to hygiene. Anticipate waking and have attendant at hand to reassure as well as to make comfortable. Attendants should be well poised, cheerful, patient, sympathetic.

Prevent fear by avoiding sudden noises, clapping, shouting, excited action, loud talking in nursery, or any attempts to frighten.

Overcome anger and teasing by refusing to grant objects cried or teased for; avoid teasing the child, or other artificial situations that produce anger.

Moral training: Good humor. Remove defects, *e.g.*, adenoids, phimosis, which produce local irritation, nervousness, irritable temper, fretfulness, and bad habits; prevent fatigue, overstimulation, overexcitement. Keep busy by ample simple play material, environment for exploration. Avoid unnecessary prohibitions, or unnatural conditions necessitating prohibitions.

Sense of law: Develop through strict regularity of daily regimen in feeding, eliminations, sleep; consistency in care and discipline.

Cleanliness: Cultivate sense of cleanliness by daily baths; beginning in second year, by always washing hands before and after meals and after toilet.

Obedience

Intellectual and Play Interests. 2 to 6 years.

Sensory and motor stage: Range of active sensory experiences, — tasting, touching, hearing, seeing

Interest in color, sound, tasting, strongest at 4 to 6 years

Constant sensory experimentation and exploration

Experimental science; taking apart; finding source of motion or noise

Nature interest; animals, birds, insects, flowers; watching actions, noting striking characteristics of appearance

Interest in experimenting with material (2 to 4 years); in making for use (4 to 6 years)

All work crude; materials large, coarse, utilizing fundamental muscles; periods short, to avoid strain of eyes or nerves

Handcrafts:

(a) Building, digging, sand play (from one year)

(b) Carpentry, drawing, painting, modeling (from two years)

(c) Cutting, pasting, heavy paper construction (from 4 years.

(d) Coarse weaving, cardboard construction (from 5 years)

Language: Articulation; increasing vocabulary; sentence construction

Comparison of words (sounds and meanings)

Beginnings of simple original story-telling

Fairy tales, myths, fables, animal stories, anecdotes of children; Mother Goose, selected poetry

Measuring, counting (after 4 years, if interested)

Rhythm: Marching, skipping, simple folk dancing, clapping

Music: Hearing and improvising instrumental and songs; much spontaneous singing

Motor coördinations: Walking on straight line; balancing, throwing, catching, consistency

Forming of clearer perceptions of objects, social actions, moral distinctions

Curriculum

For Religious, Moral, Emotional and Æsthetic Values

Sensory training: Variety of objects, varied sizes, shapes, texture, hardness

Prismatic colors in graded shades, in fabrics, paper, toys

Variety of musical instruments or musical sounds; piano, violin, cello, guitar, organ, fife, flute, horn, willow flute, drums, tubephone, cymbals, tambourine, Japanese gong, musical bells, musical glasses

Toy stringed instruments, drum, made by child

Attention called to sounds of nature: Wind, rain, splash and trickling of water, calls of animals, birds, insects

Taste, smell, temperature and weight senses of minor importance; to receive slight attention

Discrimination of finer differences in shades of color, loud and soft sounds, high or low tone, slow or quick rhythm, rough or smooth surface, soft or hard texture, weight, temperature

Memory of sensation, and ability to match it; applied to colors, shapes, textures, sounds

Motor Training: Coördination of eye and hand by aiming at a mark, catching ball, ring, dangling rope; pouring liquids, measuring liquid and dry measure, linear measure

Coördination of eyes and legs by jumping over or at a mark

Coördination of legs in marching, skipping, walking up and down a short stairway or stile

Acquiring balance by walking on a line, rail, plank; climbing low ladder, low trees, broad planks, low elevation

Coördination of arms and hands by carrying own cup and spoon at meals, eating without bib (after three years); neatness in table manners; assisting in serving and clearing away meals; dusting, sweeping

Climbing low ladder, bars, trees; swimming (4 years). Free, impromptu interpretation of instrumental rhythms of distinctive character, by dancing and pantomime

Habits of neatness and orderliness are taught by care of own clothing as removed, and putting away of toys. Social conventions taught through good examples and through dramatic play; promptness by immediate response when called; hygiene and cleanliness by brushing of own teeth, washing of face and hands, cleaning of finger nails, brushing of shoes (needing, of course, some supplementary treatment), putting own clothes off and on (after 3 years), fastening and unfastening own shoes and clothes. (Note that clothing should fasten in front or on shoulders, shoes preferably laced.)

Language: Distinct articulation and enunciation are taught through good examples, by training in special sounds that are omitted or incorrectly pronounced after four years of age, by training in modulation and control of pitch of voice. Vocabulary is increased through stories and daily conversation.

Store of classic nursery rhymes, poetry, folk-tales, fables, animal stories, fairy tales

Colloquial expressions, names of objects, songs, in foreign language, with pure native accent, after three or four years

Learning own name, address, father's name.

Reading and writing are a hindrance to freedom of thought and a strain upon eyes, fingers, and nerves.

Construction: Building with large plain blocks (2-inches and larger) of wood, cement, stone; variety of geometric forms; new forms added singly and gradually.

Building with peg-lock blocks, meccano, and other interlocking and knockdown apparatus

Hammering, sawing, planing, boring

Making of simple whitewood furniture and toys

Cutting out toy birds, animals, toys, from soft wood, with coping saw

Making birdhouses and drinking fountains of wood, clay, cement

Making designs with large wooden beads (1-inch size), sticks (not less than ¼ inch diameter, 4 inches long), colored mosaics of stones (not less than 1-inch side), pegboards (pegs not less than ¼ inch diameter)

Stringing large wooden beads; buttons (after 3 years)

Filling in simple designs having distinct, heavy outlines, using water color or crayola; suggestions regarding technique given only as requested.

Painting walls, boxes, or other large surfaces with 2-inch brush, or pretending painting, using water

Modeling and building in sand; shaping land and water forms, building farms and villages

Imaginative work, not copying directly from objects, in modeling or drawing.

Free-hand paper cutting or tearing of circles, squares, utensils, furniture, fruits, animals, dolls

Cutting out pictures having simple, heavy outline

Making toys and furniture with spools, boxes

Simple paper folding (occasionally)
Coarse weaving with lamp wicking or cloth strips

Nature: Assistance in care of pets, garden, house plants

Exploration of meadows, garden, woods

Observation of many domestic and wild animals, chickens, birds, insects, and their ways, nests, food, enemies, protection

Observation in native habitat where possible, or in zoölogical gardens, home or public aquaria

Collections of stones, shells, flowers (not pressed); leaves (pressed and mounted), grasses, seeds, insects for vivarium

Observation of clouds, direction of wind; frost pictures, snow crystals; rising and setting of sun; length of shadows; evening star, milky way, phases of moon; chief land and water forms — mountains, hills, valleys, islands, rivers, lakes, waterfalls; changing seasons, their characteristics, special gifts; preparation of man, animals, plants for winter

Call attention to life processes in plants, including growth, blossoming, fertilization, protection of flowers and seeds, distribution of seeds; also care of animals for their young, preparation of nest or shelter.

Identification and naming of a few most common animals, flowers, insects, birds, trees

Attention called to types, as trees, trunks, branches, bark, leaves; plants, leaves, flowers, fruits

Geography and History: Methods of travel; industries, especially simple or primitive forms of providing shelter, food, clothing; children of any lands or times; their ways of living compared with his. After three years, tell stories of American history, constructive, not military

Hygiene: Care of teeth, eyes, ears; correct posture in sitting and standing; protection from germs by cleanliness, care in coughing and sneezing, disuse of public towels or drinking cups; first aid in bruises, cuts, burns, fire (clothing or dwelling)

Experimentation: Simple experiments in mechanics, electricity, chemistry, cooking

Concentration: cultivate through
(a) providing environment and material that foster exercise of spontaneous interests in handling, examining, experimenting, constructing;
(b) avoiding interruption when child is attentive to an action, unless for important reason such as physical regimen, danger of fatigue or satiety;
(c) Correlating interests into an organized play, *e.g.*, building of a doll's house; playing store; telling or dramatizing of a continued story, lasting for days or weeks (after two years);
(d) Giving a direction, request or command only once, and requiring attention and prompt response.

Æsthetic Appreciation: Rhythm acquired through hearing of rhythmic songs, music, chanting of nonsense or poetry; and through rhythmic plays, marching, dancing
Taste for good songs, music, pictures, color combinations, simplicity, orderliness, harmony, cultivated by good examples in housekeeping, furnishings, decorations, clothing, books, toys, music in home
Experimentation with color, modeling material, rhythm, musical sounds
Play with toy musical notation

Emotions: Train in control of temper, disappointment, in genuine but not gushing expression of affection and joy.
Discourage showing off, attempts to attract attention to self, or other forms of conceit, vanity or self-consciousness; direct this energy into thoughtfulness for others.
Treat bad temper, sulkiness, fretting, as symptoms of ill-health, and let the child sit down or lie down until relaxed and good-humored, diverting attention meanwhile to other subjects. In extreme cases, put gently to bed, possibly giving also a warm bath. Do not ridicule any expression of emotion or do anything to foster self-consciousness.

Set an example of wholesome emotional expression.

Avoid any conditions that might foster fear, such as fright, grewsome stories, nervousness, indigestion, excitement before bedtime.

Counteract instinctive and imaginary fears through example of poise, ideals of bravery, confidence in Providence and nature, closer acquaintance with special objects feared, as animals, darkness, closets.

Moral: (See Birth to 2 years) Add at this stage:

Strict obedience

Teasing, pouting, sulking and tantrums eliminated by denying objects thus sought

Generosity, sharing with others, giving gifts

Thoughtfulness for comfort and happiness of family and playmates

Learning to play with others peacefully; solitary play as natural consequence of quarrelling

Patience in accomplishing a desired end

Honesty. Differentiate between (*a*) imaginary tales and (*b*) attempts to deceive, usually for the sake of escaping punishment or gaining some desired object. Example of honesty in keeping promises to child, telling truth to others

Confidence in self, in universe (God and nature)

Show narrowness of tattling, snobbishness, unkind criticism

Respect for body; modesty; by example and in physical care

Large vocabulary of adjectives and exclamations as preventive of slang and vulgarity; examples of good speech; prompt eradication of slang or vulgarity, by natural consequences, such as washing of mouth, play alone

Answer child's questions regarding origin of life reverently, seriously, honestly, with emphasis upon nurturing and on social coöperation of mother and father; give a bias toward the social and spiritual relations of family life, and a suggestion of the future parental responsibilities of the child.

Memorizing of mottoes, wise sayings, proverbs

Religious:

Respect for authority, by example, and by requirement of obedience

Foster sense of mystery and wonder through life and nature

Example of worship at home

Teaching of simple childish prayers, if child asks for this

Answering child's theological questions reverently and seriously, as he asks them

Telling selected Bible stories

Occasionally taking to opening service at church

Singing of hymns informally at home

Teaching child hymns and carefully selected Bible verses

Intellectual and Play Interests. 6 to 9 Years

Extensiveness: Gathering experiences. Little attempt at organizing, systematizing, memorizing, or formal education. Less fragmentary than in previous stage

Great variety of interests; seeking knowledge of natural world

Experimental science—physics, chemistry, mechanics

Analysis of objects to find construction, source of motion, sound

Handcrafts: Carpentry, weaving, building, drawing, painting, modeling

Making for use; less interest in mere activity; interest in workmanship developing

Gardening: Care of pets; observing animals, insects

Collecting stones, leaves, seeds, curios, historical souvenirs

Rhyming; increasing vocabulary; conversation and original story-telling; foreign language (colloquial)

Primitive people and ways of living

Sources of supply of food, clothing, shelter

Curriculum

Sensory training: Sorting and examining fabrics, colors used in construction

Experimenting with sounds and improvising of melodies and rhythms continued

Permit attempts to pick out tunes on musical instrument

Frequent attentive hearing of good instrumental music, short duration

Occasional visit to art museum or store, without comments, giving information on request

Motor training: More difficult and complex coordination of muscles mentioned in previous period

Greater accuracy, skill, assurance, freedom

More use of forearm

Use of fingers in handcrafts

More complex and complicated movements in marching and dancing

Alertness in changing from one rhythm to another

Free impromptu pantomime, interpreting instrumental rhythms

Pantomime of stories

Posing, original ideas or copying famous pictures or statues

Tableaux; charades

Forms of housework: sweeping, dusting, scrubbing, washing, ironing, dish-washing, table-laying, making beds; for accuracy, neatness, dispatch, concentration, application, responsibility, as well as motor training

Skating, swimming

Use of swinging rings, parallel bars, rope ladder; climbing trees

Avoid activities that strain heart or produce great fatigue.

Language: Encourage conversation, discussion of topics of interest and value, story-telling. With models of correct grammar and idiomatic English in earlier childhood, there will be little incorrect language to correct.

Increase vocabulary especially by descriptive words in story-telling.

Continue models of distinct enunciation, well-modulated voice.

Encourage rhyming; do not ridicule or make light of rhymes.

Spontaneous dramatizing of stories; permit freedom, and absence of self-consciousness in expression; avoid criticism of technique or form of expression.

Teach colloquial expressions, poems, songs, from foreign language, with pure accent.

Avoid forcing of interest in reading, writing, or number; prohibit for nervous child; discourage for bookish child, and supply more real interests. For normal, active children, assist spontaneous interest, in short periods, with careful regard for hygiene of eyes.

Nature: Providing food and drink for wild birds, animals, insects not pests

Care of pets, gardening, with responsibility for daily care

Encourage collections as in previous period, adding insects and small live animals kept in vivarium, birds' nests, pictures of birds.

Keep calendar of birds, flowers, weather conditions.

Observe effects of frost, wind, rain, streams, waves, upon soil and rocks.

Observe unfolding of leaves and blossoms, and formation of seeds from flowers; methods of protecting and distributing seeds.

Plant large seeds where process of germination can be observed.

Identification of trees, birds, flowers, insects

Gathering of nuts; drying of fruits and vegetables for winter

Observation of some inherited characteristics in flowers and animals

Raising of pigeons or chickens or a litter of kittens, rabbits, or guinea-pigs

Noting coöperation of father in care of birds

Study of primitive life, types of dwellings, providing of food and clothing, making of weapons

Learning days of week, months of year; telling time of day by clock and sun dial

Sciences: Simple experiments in physics and chemistry continued, in response to child's questions regarding composition of substances, principles of mechanics and electricity, etc. For example: differences noted between solids, liquids and gases; acids and alkalies; adhesion, cohesion; composition of water

Cooking

Construction of batteries, and making of toy telephone

Application of water power to toy machines; wind power to sailboats, toy wind mills

Making toy steam engine and harnessing to toy machinery

Comparing specific gravity of different substances

Observation of stars in early evening

Identification of dipper, north star, evening stars, and a few constellations visible before child's bedtime

Anatomy and physiology: Main facts and processes; principles of hygiene; first aid in drowning

Mathematics: Counting small quantities

Measuring as in previous period; use of pints, quarts, ounces, pounds, peck, bushel; playing store with real measures and wares; making change with toy money; metric measures

Use of common fractions in construction and store play

Buying at store and making change

Use of small weekly allowance

Measuring inches, feet, yards, rods, in construction and store play

Reading thermometer

Construction: Making of more difficult things

More attention to workmanship — accuracy and finish of product, skill in handling tools

Use of smaller and finer materials

Carpentry; wood carving; making of cement blocks; modeling with clay, having good pieces fired; use of potter's wheel

Weaving with raffia, carpet woof, yarn, quarter-inch strips of cloth or silk

Stringing small wooden beads, glass beads, papers and straws, berries, seeds

Paper cutting, freehand, and following a line

Coarse sewing for dolls, simple personal mending, making of gifts (periods not longer than half hour)

Basket-making with raffia and other flexible material

Experiments in carding of wool, spinning of yarn and thread

Making miniature types of dwellings of primitive peoples, as Indians, Laplanders, Filipinos

Making toy theaters and puppets

Making scrapbooks classified for different subjects of interest

Drawing still from imagination, not directly from object, viz., an avenue of creative imagination, not of accurate observation nor logical analysis of line or form. Water color and crayola used in the same way; copying of objects or pictures permitted if spontaneous; coloring pictures

Little criticism of technique, avoiding any suggestions that might repress freedom of expression, individuality, or confidence

Suggestions for improvement in technique as requested

Improvising of melodies and little songs

Æsthetic Appreciation: As in previous period

Making collections of pictures from magazines, reproductions of paintings and sculpture, allowing free individual choice; abundance of good examples provided

Moral: As in previous periods

Little appeal to conscience, motives, ambitions

Training in good habits as part of regular routine

Stories of fidelity, loyalty, generosity, helpfulness, patience

Religious: As in previous period

Avoid forcing of religious interest or observance of forms

Select Sunday school with care. May be preferable to take child to opening portion of church service, and to full service on festival days

Bible stories especially of Old Testament history; boyhood of Christ

Stories from lives of religious leaders

Portions of religious allegories, as "Pilgrim's Progress"

Cultivate tolerance for other sects.

Intellectual Interests. 8 or 9 to 12 Years

Tools of knowledge — reading, writing, spelling, numbers

Repetition and drill; learning by rote

Tests of observation, attention, mental alertness, power of inhibition

Little use for explanations or power of abstract reasoning

Language: Play upon words; secret language, foreign language

Collections: Collecting interest at greatest height; nature chief collecting interest; imitative in collecting interests

Mathematics: Simple arithmetical processes

Narrative history; action, adventure, biography

Physical geography: Social geography — customs, habits, living conditions of people in other countries

Nature: Care of pets, play with animals, gardening, collecting

Handcrafts: Great range; development of skill and workmanship

Coördination of muscular action with sense judgments

Mechanics, electricity, chemistry; mechanical puzzles (interest culminates at 11 years)

Toy interest decreasing toward end of period

Doll interest with girls reaches climax at 11 years; ceases with boys at 8 years.

Beginning interest in making livelihood.

CHAPTER XIII

PLAY

"Play is the highest phase of child-development — of human development at this period (childhood); for it is self-active representation of the inner, from inner necessity and impulse."

"The plays of childhood are the germinal leaves of all later life; for the whole man is developed and shown in these."

"Come, let us live with our children."

— F. Froebel.

Play is spontaneous self-activity. It is not found among lower forms of animal life. The length of the play period with any species is directly related to the degree of intelligence of which it is capable.

Young children instinctively play activities which become work when they are mature, and which their ancestors have practiced as work. Among animals, play is Nature's method of training for responsibilities of maturity in food-getting and protection from enemies.

Among the great educators of earlier days who have recognized the value of play as a means of education of children are Plato, Comenius, Rousseau, Locke, Rabelais. Pestalozzi and Froebel were the first modern educators to practically utilize play in the education of little children, and the widespread interest in play to-day is traceable to their efforts and influence.

Play and Work. In play the individual expresses his own desire, unhampered by artificial restriction or repressions, limited only by his own strength, his imagination, and the facilities of the environment.

Play is not necessarily easy, in the sense of making small demands upon physical strength or mental energy. Any one who watches children at their play knows that the intensity of their interest and desire leads them into work requiring the utmost of their physical strength, endurance, and skill, and the greatest exercise of imagination, initiative, judgment, patience in the solving of problems; drudgery is performed with relative ease, because it is appreciated as a necessary means to a greatly desired end. There is no value in drudgery as such. It is a part of the great art of life to select motives and activities that are an expression of self-activity, and to perform the drudgery in the same spirit expressed by children in their play. Drudgery becomes irritating when it is not appreciated in its relation to an interest, as when it is a task set by some one else, with no relation to the life of the doer; or is the performance of labor for others merely for pay, without any personal interest in the work or its results.

The child must learn to perform many duties in his own personal care, in the life of the household, the family, and the community. It is of greater value to put imagination and the play spirit into these, to learn to make games of them, than it is to make dull, unimaginative drudgery of them. During his fourth or fifth year the child can begin to comprehend the values of these tasks, in self-dependence, service to others, coöperation in the advancement of human life, and that he has the part of a worker to play in the great game of life.

Learning, intellectual study, art, should by all means be forms of self-expression, a development of personality, a source of happiness in their acquirement, — play in a large sense. If the pupil is unhappy, disinterested, inattentive, the teacher or the educational system is at fault in not having discovered the vital, instinctive interests of the child and his natural, spontaneous way of learning. Better turn such a child out for free play and first learn from him what are his vital interests, and then utilize these, in this play spirit, to bring to him content and discipline of educational — that is, permanent and highest — value.

This ideal is practically possible by studying the child's instinctive activities and interests at any given stage, and supplying (a) conditions in the environment which permit his full and rich expression of these interests; (b) content or goals that have permanent life value; (c) increasingly difficult and more complex conditions and problems, so that the child is advancing in skill and ability.

For example: The baby likes to handle objects. Cultivate this play interest educationally by giving him objects illustrating a great number of shapes and sizes. Utilize his love of sound by letting him hear, every day if possible, some good music. The three-year-old child loves to dramatize. Teach him good manners and courtesies in playing "tea-party" and "visiting"; instruct him in simple first aid and hygiene through playing "doctor." Later, tell him great stories from the myths, from history, from classic literature, that he can "play out."

At about five years of age children instinctively pour and measure. Instead of leaving this to chance play, it is possible to make it of permanent (educational) value by providing (a) a play space for various kinds of measuring; (b) a variety of substances to measure, as sand, sawdust, pebbles, water, colored water, long strips of paper, cheap tape or cloth, clothespins, even "real" fruits and vegetables; (c) standard measures, — pint, quart, gallon, dry quart, peck, bushel; later, gill and ounce, and the pound and ounce weights; (d) bottles with wide mouths, and other receptacles for pouring into, that will cultivate steadiness and carefulness. Begin with two or three measures, teaching their relation, as pint and quart, gradually adding more as these become known. Give at first measures and bottles easy to pour into, later those more difficult, requiring better coördination. Set a standard of neatness and accuracy. Watch for indications of fatigue and let the play stop before there is any strain.

Normal children in a normal environment do not wish to be amused, but they are full of ideas of their own that they wish to express. The adult very often desires to amuse children, — not primarily for their benefit but for his personal pleasure in watching them and participating with them; he (or she) needs a training in self-control and a deeper understanding of child nature, that he may come to find as keen satisfaction in standing aside and watching the child's self-development, bringing forward his own personality only where it will be of educational or social value.

Children's Parties. Children's parties may be a means of social, physical, and spiritual grace, or they may be made a cause of nervousness, dissipation, corruptive ideals. As a means of grace, they should (a) be held in the daytime and last about two hours for children under six, three hours for the older group; (b) preferably outdoors; (c) include a small group of guests — only four or five for children three to five years, ten or twelve for children five to seven, and about twenty as a maximum for children seven to ten; (d) require simple dressing; (e) little preliminary excitement of preparation; (f) games carefully conducted, and alternated with stories to prevent fatigue or too much excitement; (g) a small amount of very simple refreshments, as fruit juice and lady fingers, or milk and animal crackers for children under five; or a small portion of pure ice cream and sponge cake for children five to seven; or a small amount of simple candy, nuts, popcorn for children over seven.

Play Room and Ground. The best playground is the home yard, where mother can keep an oversight; where other children can come so she knows the playmates, and where the child is kept in sympathy with home influences. For indoor play, there should be a room kept sacred to the uses of childhood. In this way both adults and children have more freedom, with less conflict of comfort and convenience. For children under three or four years this room will naturally be the nursery; for older children it should include facilities of a workshop.

The playroom should be well lighted and ventilated, with floors bare except rugs for small children to sit upon. The walls, curtains, and rugs should be washable. The color scheme should be cheerful and attractive to childhood. Yellow, warm gray, or green are especially good; red is too stimulating; violet is oppressive. Touches of rose or light blue might be added. The wall covering should preferably be a hard paint or Sanitas, at least to a four-foot wainscoting. Pictures should be easily removed, frequently changed, arranged with some regard to unity and symmetry. Pictures for little children should be hung low enough to be easily seen.

The furnishings should include tables adapted to the child's height, chairs of hygienic design, cupboards and window seats for toys, apparatus, tools, books, where they will be kept out of the dust and in a reasonable order. The children should be responsible for the orderliness of rooms and cupboards, good condition of walls and furniture, and ordinary care of playground and playroom. Children over seven may well be responsible for sweeping, dusting, wiping of floors and woodwork.

Playground Apparatus. Sand pile, in framework or box, with cover for protection from stray animals and weather. White sea sand is cleanest.

Swings adapted to size and development of children
Playhouse
Place for pets and garden

Other apparatus, adapted to children at different stages, is listed under each period, in this and two subsequent chapters.

For the playroom, supply an aquarium and vivarium, tools, workbench, materials for handwork.

Play Interests and Activities. Infancy to Four Years

Sensory and motor activities
Individual play
Toys
Imitation; simple, imaginative, dramatic play
Quiet games preferred to active

One to Eight Months

Simple sense plays: Seeing, hearing, touching
Play with limbs: Arms, hands, legs, toes; grasping, sucking, reaching for objects, holding, pulling, shaking, kicking
Pleasure in passive rhythmic movement of limbs, given by attendant
Play with simple toys
Apparatus: Baby pen, toys

Eight to Twelve Months

Experiments with sounds: Crumpling paper, pounding, pulling bells
Surprise and recognition: Peek-a-boo
Play with limbs: Pat-a-cake, touching features
Handling objects, turning key, opening and closing doors
Imitation: Smiles, vocal sounds, manual work
Rolling ball: Receiving ball when rolled
Apparatus:
  Chair swing, with support for feet
  Chairs to climb up by and push

Low railing for support in standing and walking
Two or three low, broad stairs (about 6 inches high, 12 inches deep) to crawl up and down

One to Two Years

Sensory and motor experiments more extensive
Exploring, handling
Opening and shutting; taking out and putting in; turning key.
Digging; pouring
Pounding for noise, tearing paper
Hiding self
Simple finger plays, *e.g.*, "This Little Pig", "Creep Mouse", "Knock at Door", Froebel's "Play with Limbs"
Rolling and tossing ball in free play
Brief games, rolling and throwing ball, with adult
Play with toys, as doll, cart, train, animals
Apparatus:
  Swinging chair, with board or wall to strike feet in swinging
  Low stile or stairs, with side rail or bannister
  Small, low ladder
  12-inch plank, 6–10 feet long, laid on ground, or securely elevated 4 inches, making low bridge
  Kitchen, cupboards, drawers, playroom, for exploration

Two to Four Years

Exploring wider range; watching activities, people, animals, machinery
Examining objects; taking apart and putting together
Digging, pouring; playing with sand, mud, water
Hammering, pounding; experimenting with sound
Building with blocks; piling up and tearing down
Simple ball play, chasing, rolling, trying to catch
Finger plays; only simple ones yet possible, "Thumbkin says, 'I'll Dance'", "The Merry Little Men", "The Garden", "Here's a Ball for Baby", (Poulsson)
Jumping and sliding begin; short running, being caught

Walking sidewise along fence, swinging on rope; climbing
Imitation of adult activities begins; household work, common industries
Hiding self, but without sufficient control to remain until found
Pounding and rolling modeling clay; pretend painting, drawing, sewing
Gathering stones, sticks, bright-colored objects
Experimenting with liquid color
Looking at pictures, especially of children, animals
Feeding pets, planting seeds
Play with dolls, toy animals, active toys
Apparatus as for previous age, and add:
  Slide, purchased ready-made; or homemade one of 12-inch plank, smooth, waxed, firmly secured, raised at one end 2 feet, protected at sides by 3-inch strips, free from slivers
  Board swing, with back, opposite board or wall to strike feet against
  Heavy rope, knotted at end, suspended from tree or ceiling, to catch hold of and swing upon
  Pit of straw, hay, sawdust, or sand to jump into
  Playhouse with small doors and windows to crawl through; may be made of large packing boxes
  Swinging bar, to hang from by hands, toes on ground. Should be raised just enough for difficult reach; may be homemade of broom handle, capped at ends with leather or cloth, suspended by ropes from tree or ceiling.
  Shallow brook, watering trough, tub, or basin, for water play

For outdoor play, clothe the child in white or light seersucker rompers, with sandals, in summer, and knitted sweater and leggings in winter, for both boys and girls.

Teach children how to jump correctly, landing on soles of feet, bending the knees.

Children at this age are most likely to be at a loss what to do next. With ample opportunity and space for exploration, objects for examination, and suitable apparatus for instinctive physical activities, they will find this need met and will not need to be "amused."

Four to Six Years

Sensory and motor activities
Dramatic imitation, industries, animals
Imaginative dramatic play; dressing up
Beginnings of group play, unorganized
Beginning interest in circle games, singing games, traditional games
Finger plays
Climbing, jumping, rolling, sliding, swinging; balancing, walking on straight line
Beginnings of marching, skipping, dancing, swimming, skating
Handcrafts: Carpentry, painting, drawing, modeling, pasting, building with blocks, mechanical construction
Pouring, filling, weighing, measuring
Play with water, sand
Planting, caring for garden; caring for pets
Collecting less crude; stones, sticks, leaves, insects, pictures, flags, buttons, bright colored paper, cloth
Doll play (boys and girls)
Hiding, hunting for persons and objects; with growing control
Simple tag games, short running, simple rules
Simple guessing, observation, surprise games; playing tricks
Play with words, as nonsense syllables, long words, rhyming
Experimenting with sound; improvising songs, melodies, on instruments
Experimenting with colors and shapes; sorting, matching, grading; coloring pictures
Looking at pictures with story value, historic value
Experimenting with problems in physics, chemistry
Exploring a wider environment

Apparatus and equipment:
- Farmyard, garden, orchard, meadows, woods, beach
- Sand pile; sand box for house
- Swings, slide, jumping pit, playhouse, adapted to size
- Swinging rings; made of rope secured with heavy surgeon's plaster, and covered with cloth, suspended from tree or ceiling
- Rope ladder, 6 feet high, with mattress, straw, or hay bed beneath
- Fence for sidewise walking
- Joist or rail, 2 inches wide, single or parallel, for straight-line walking
- Aquarium, vivarium; boxes for collections

During this period there is need of much companionship with a few other children of from three to seven years. This will give training in generosity, social feeling, kindness, patience, self-control. It will provide larger opportunities for dramatic play, and thus for range of imagination.

Six to Ten Years

Sensory interests less marked
Ability to keep to rules of game
Group play, especially traditional, circle, singing games, group competitions, ball games
Running: Running games, catching, as in forms of tag
Doll play; usually confined to girls; in latter part of period, paper dolls, stunt dolls
Ball play and games, especially among boys
Dancing, balancing, swimming, skating, climbing, swinging, sliding, tumbling
Manual dexterity in catching, throwing, balancing, hitting at a mark, hitting at a ball
Dramatic play organized into serial play extending over days and weeks, especially industrial activities, as playing house, store, school, primitive life; playing

at camping, hunting, imitating social life of adults as found in environment
Handcrafts: Carpentry, painting, drawing, modeling, weaving, sewing, knitting; pasting, papercutting; mechanical construction
Decorating, decorative designs, personal decoration
Weighing, measuring, counting
Housework, cooking
Rummaging, hoarding
Hiding and finding games more complex and difficult
Collecting interest strong; wide range, little classification; includes pictures, flags, stamps, shells, souvenirs, leaves, birds' eggs, minerals, insects
Gardening; care of pets
Games of mental alertness, observation, shrewder guessing, physical alertness, accuracy, motor control
Play with words; rhyming, puns, riddles, counting out
Measuring strength of wit, patience, personality, will, with others, especially adults
Observing industries, visiting natural history museums, watching machinery in action
Exploring meadows, fields, woods, caves
Expression of natural ability in special phases of art
Apparatus and equipment:
  As in previous period, except fence and rail
  Ample space for running, climbing, group games

Companionship of comrades, boys and girls, for cultivation of social adjustment fairness, generosity, competition.

CHAPTER XIV

GAMES

"The difference between a genius and a pedant consists exactly in this, that the genius performs his work playfully, while the pedant groans under the drudgery of his task."

—PAUL CARUS.

"The real fall of man is to do things without zest."

—G. STANLEY HALL.

The Value of Games. All games are play, but not all plays are games. In a game some rule is involved, some goal or object is to be attained. Usually, though not always, in a game, two or more play together.

Most children under three years of age, and many under four, have not developed sufficient self-control, imagination, memory, and judgment to play a game. If "Hide-and-Seek" is attempted, they will run out of the hiding place before they are discovered. In "Hunt the Thimble", they will point out where the object is hid. They are with difficulty held to the sequence of circle games, except of the simplest sort.

At about four years, however, most children have the mental and social development to find interest in circle games, traditional games, and some competitive games.

Supplementing the educational values of play in general, different games have some of these additional educational values:

Training in social relationships, in group action, coöperation, competition

Cultivating a sense of social interdependence

Sharing experiences with mates
Subordination to the rights, desires, and leadership of others
Loyalty to a leader or a group
Incentive to improvement of skill in order to compete with others
Acceptance of the consequences of failure or inefficiency
Opportunity for leadership to him who is able
Realization of law, through rules of game
Measuring of personal ability and personality with that of mates

Kinds of Games. Games may be classified according to

(1) the degree of physical activity involved;
(2) the degree and kind of mental activity required;
(3) the moral and social traits cultivated.

Each of these groups would be subdivided according to age, although some games seem of interest at any age.

With little children in the home it is convenient to have at hand a classified list. This list should begin with the standard games, and be lengthened as new ones are found or, better still, are devised by the children.

Any game tried should be interesting, "fun", that is,

(a) suited to the physical powers and mental development of the child;
(b) expressive of his spontaneous interests.[1]

Certain activities have play interest at every stage but could be played only in a very simple, brief game under four years, and for a longer time and more complexly after that age. These most common activities, or motifs, include surprise, imitation, observation, guessing, hiding, seeking, catching, chasing, running, ball play. The worker with young children should be able to invent many little games based on these motifs. Simple little songs, invented, spontaneously improvised, or gathered from kindergarten songbooks, add joyousness to the game, cultivate a love and expression of music, and teach the utilizing of art in everyday life.

---

[1] These spontaneous interests and the developments of physical and mental abilities are briefly analyzed in Chapters V, XII, XIII.

Games may be analyzed by the following scheme, to discover their values.

- Active:
  - Outdoor
  - Indoor

- Quiet:
  - Outdoor
  - Indoor

- Sensory Training:
  - Sight, hearing, touch
  - Taste, smell, weight
  - Form, color
  - Alertness
  - Accuracy
  - Discrimination

- Motor Training:
  - Bodily control
  - Neatness
  - Alertness of response
  - Accuracy of movement
  - Coördination of different muscles
  - Skill
  - Grace

- Mental Training:
  - Observation
  - Concentration
  - Alertness
  - Imitation
  - Perception
  - Imagination
  - Judgment
  - Accuracy
  - Initiative
  - Invention
  - Leadership
  - Individuality
  - Inhibition
  - Relaxation
  - Humor

- Moral Training:
  - Perseverance
  - Courtesy
  - Gentleness
  - Generosity
  - Courage
  - Patience
  - Independence
  - Justice
  - Sense of law
  - Coöperation

Every game involves some attention and conformity to rules. "Follow the Leader" involves activity, careful observation of the leader's movements, imitation, alertness, motor control, and reasoning in guessing; if trade is represented, the leader must exercise ingenuity and initiative in thinking of a new movement. "Spin the Platter" and "Drop the Handkerchief" require mental alertness intermittent with attention. "Cat and Mouse" and "Hawk and Chickens" require physical alertness, dexterity, and quick judgment. "Ring-around-a-Rosie" involves rhythm, chanting, and a bit of the ludicrous. "Charlie Over the Water" is a step further, involving mental and physical alertness. "Little Sallie Waters" and "Farmer in the Dell" involve love of rhythm and music, dramatizing, and the choice of a partner.

Games for the Littlest

Eight to Eighteen Months. Motor control, finger plays, surprise

Finger Plays:
  - Peek-a-boo
  - Pat-a-Cake
  - Open the Door
  - This Little Pig

Falling, Falling (Mother Play)
Rolling and receiving the ball
Hiding self
Hiding things
Catching

One to Three Years. Motor control, finger plays, hiding; observation, surprise, guessing, imitation

Hide and Seek (very simple)
Hunt the Thimble (use ball or doll)
Chasing and catching
Rolling, tossing, and catching ball

Finger Plays:
  - Here's a Ball for Baby
  - The Merry Little Men
  - Finger Piano
  - Shut them, Open
  - Thumbkin says, "I'll dance"

Nursery Finger Plays

1. This Little Pig Went to Market

2. Knock at the door (tap the forehead)
Peep in (lift the eyelid)
Lift up the latch (touch tip of nose)
Walk in (touch lips)
Take a little chair
Right down under there (chucking under the chin).

3. Here's my father's knives and forks (hands back to back, fingers standing up like rake)
Here's my mother's table (hands turned over, the interlaced fingers flat like a table)
Here's my sister's looking-glass (forefingers raised, forming a triangle)
And here's the baby's cradle (little fingers also raised, forming a triangle for front piece of cradle).

4. Here's the church (position as in line 2 of preceding)
And here's the steeple “ “ “ “ 3 “ “
Open the door “ “ “ “ 1 “ “
And see all the people.

5. “Shut them, open; shut them, open;
Give a little clap;
Open, shut them; open, shut them;
Fold them in your lap;
Creep them, creep them, creep them, creep them.
To the little chin;
Open wide the little mouth,
And pop a finger in.

“Shut them, open; shut them, open,
To the shoulders fly;
Open, shut them; open, shut them,
Up into the sky;
Falling, falling, falling, falling,
Almost to the ground;
Hold them up in front of you
And twirl them round and round.”

6. Thumbkin says, " I'll dance,"
Thumbkin says, " I'll sing,"
Dance and sing, ye merry little men,
Thumbkin says, " I'll dance and sing."

(Tapping with thumb, other fingers closed)

Pointer says, etc. Refrain
Tall man says, etc. "
Ring man says, etc. "
Little man says, etc. "

(On refrain, all fingers tapping)

All men say they'll rest
All men say they'll sleep.
Rest and sleep, ye merry little men;
All men say they'll rest and sleep.

(Last stanza, hands closed, thumb inside; sing softly)

7. Now see we here
These friends so dear,
As they together meet.
With bows polite
And faces bright
Each other they will greet.
Oh, " How do you do," and
" How do you do," and
" How do you do," again
And " How do you do,"
And " How do you do,"
Say all these little men.

(Hands held up with fingers erect, palms opposite. At line 7, thumbs bent toward each other, and following fingers on each succeeding greeting; all together on line 11.)

Three to Four Years. Children are usually not yet interested in group games; some children not until five or six years. At this age children can play together with their toys but cannot manage a game among themselves. They are able to play simple games with an adult. The parent or teacher can make simple games out of the daily activities.

Slightly more difficult finger plays and forms of games than those listed in previous age period can be used, and simple forms of those games listed in succeeding period.

Motor Accuracy:
  Tenpins

Circle and Active Games:
  Ring-around-a-Rosie
  Cat and Mouse

Sense Games. These involve the "guessing" interest but require thought.

Sight and Observation. Tell what object, color, form is taken away from a group, or added. Match a color or form of flower or other object, first with object in hand, later from memory. "I saw"—relating what was seen on a walk, in a room, or when passing a store.

Touch. Tell the name of an object or form by handling it while blindfold.

Hearing. Tell the direction of a sound, instrument sounded, person speaking, while blindfolded.

Language Games. Many can be invented similar to the following, in which increase in speaking vocabulary is gained. Nouns: I went to the Zoo (store, boat, etc.) and there I saw—(name objects). Verbs: A train (bird, dog, wind, etc.) can—(name activities). Adjectives: I like squirrels (flowers, dolls, apples, etc.) because they are—(name adjectives).

Alertness. Children at this age, and until six, are often dawdling, dreamy. Games can be invented to cultivate dispatch and alertness, as "running a race" with a person or the clock, in dressing and undressing.

Poise, Relaxation, Concentration. What Montessori calls the "Game of Silence" cultivates these qualities. As played in the Montessori schools, the children sit quietly, relaxed, in a room slightly darkened, while all sounds are hushed, and all listen. After two or three minutes some one in an adjoining room whispers or calls faintly the name of a child, and the child goes as softly as possible, returning as softly. Ten or fifteen minutes is the limit of the children's ability to play the game. Forms of it may be played when going through the house, or whenever quiet is especially desired; or when the children are becoming irritable or too nervous.

The imitative, imaginative, and dramatic play instincts of the years from three to six offer opportunity for a wide range of invention of games. These should not be formal but by their very nature must give freedom of initiative, imagination, and self-expression. They may be utilized, for instance, in social training, as in playing that the child is a prince or princess at a banquet, or is a parent to the doll who sits near by to be taught, making a game of neat table manners or careful chewing. They may be utilized for moral training, as in playing that the child is the fairy godmother who could bring sunshine wherever she went; or Siegfried, who could kill all the dragons of ugly temper or words.

Four to Six Years. Simple circle games, singing games, dramatic imitation, catching, finding. Utilize the sense games, alertness, language, imaginative and dramatic games described in previous period, using more complex and difficult situations.

Tag Games:
  Drop the Handkerchief
  Cat and Mouse
  Pussy wants a Corner

Hiding Games:
  I Spy
  Hide the Thimble (using larger object)

Dramatic Kindergarten Games with Music:
  The Pigeon House
  The Chickadees
  The Snail

Circle and Singing Games:
  Ring-around-a-Rosie
  Charlie over the Water
  Little Sallie Waters

Button, Button
Magical Music

Ball Games:
  Variations in catching and throwing

Motor Ability:
  Hitting at a mark
  Tenpins
  Ringtoss

Attention and Invention:
  Stagecoach
  (Similar games invented, such as Boat, Flower, Wardrobe, Mythology)

Here we go round the Mulberry Bush
Did you ever see a Lassie

Alertness:
  Bird, Beast or Fish
  (Many other simple games based on this idea of classification can be invented, such as the following)
  Hard or Soft
  Tree, Vine or Plant
  Vegetable or Mineral
  Found or Made

Six to Nine Years. Period of special interest in traditional circle games, running and catching, imitative action, observation and alertness, dramatic action. More complex games are invented, utilizing classification, invention.

Circle-singing:
  London Bridge
  Round and Round the Village
  Farmer in the Dell

Counting-out Games:
Tag variations:
  Wood Tag, Stone Tag, etc.

Catching Games:
  Pom, Pom, Pull Away
  Hawk and Chickens
  Blind Man's Buff
  Dodging and dare games

Motor Control:
  Hopscotch
  Cat's Cradle
  Marbles, Jackstones
  Honey Pots
  Handicap races, as potato race

Alertness:
  Going to Jerusalem
  Spin the Platter
  Bird, Beast, or Fish
  Magical Music
  Crambo
  Riddles

Sense Games:
- Taste
- Smell
- Touch

Table Games:
- Checkers
- Dominoes

Imitation or Invention:
- Follow the Leader
- Solomon says "Thumbs up"
- Hold Fast and Let Go
- Trades
- Charades

Hitting at Mark:
- Tenpins
- Ringtoss
- Archery
- Volley ball
- Faba Gaba
- Croquet
- Tennis

CHAPTER XV

THE TOY AGE

"Choose his toys wisely and then leave him alone with them. Leave him to the throng of emotional impressions they will call into being. Remember that they speak to his feelings when his mind is not yet open to reason. The toy at this period is surrounded with a halo of poetry and mystery, and lays hold of the imagination and the heart.

"When we have restored playthings to their place in education — a place which assigns them the principal part in the development of human sympathies — we can later put into the hands of children objects whose impressions will reach their minds more particularly."

— KATE DOUGLAS WIGGIN.

The Toy Age. When the baby first begins to grasp objects and stare at them, the toy age begins, that is, at about four weeks. It increases rapidly in force during the first year, and from two to about ten years is in its height. It declines with the approach of adolescence and by twelve is devoted chiefly to apparatus for games. It wanes with the decline of imaginative play and gives way to the interest in reading and industries.

Education through Toys. Toys, as the child's constant, most intimate companions and most used implements during these impressionable years, inevitably have a marked influence upon his character and development. Froebel was the first great modern educator to appreciate the significance of a child's toys, and to apply himself to the task of selecting and inventing those that would best develop his creative self-activity, his personality and happiness. The blocks or "gifts" that he devised are valuable for their simplicity, their variety of form, and their purpose of giving to the child an increasing number of forms as he grows in imaginative and constructive ability. Froebel did not appreciate, as modern biology has taught us, that the little child is in the stage of fundamental muscle activity, and that the accessory muscles (finer muscles, of fingers and eyes) do not develop completely for steady use until after six or seven years. Froebel, therefore, used the 1-inch cubes, which hygienists to-day discard for the larger size, — at least 2-inch for table use and paving-block size for floor use.

How far are children's expressions of desire for toys, as they visit a toy shop, an index to the value of these toys, or their permanent interest in them at home? Relatively slight. Here again it is necessary to distinguish between the child's passing whim and his vital interest. Children are momentarily attracted by the gorgeous, the vivid-colored, by noise, rhythm, motion, the imitation of adult activities. This explains their superficial interest, while in a toy shop, in the realistic French doll with wonderful clothes and a speaking voice, in the mechanical toys, the flimsy little nonentities. At home, in the playroom, the flimsy nonentities are soon broken and cast away without more than a ripple of emotion, and the realistic French doll languishes alone in her glory, while plain Mary Jane receives the daily ministrations of affection and comradeship.

It is these factors of glitter, noise, rhythm, imitation, physical activity, combined with the possibilities of movement and counter-movement, augmented by the attitude and remarks of their elders, who, assuming the reasonableness of war, praise military activities, that explain the child's interest in military toys. Any other toys that have these same qualities will hold the child's enthusiasm as well. Engines, trains and their crews, fire engines and firemen, steamboats and sailors, life-savers, fishermen, policemen, mines and miners, steeplejacks, divers, carpenters, painters, farmers, — there is a great range of possibilities. It is true many of these are not yet to be had in the toyshops, but they will be found there as soon as the demand is sufficient. It should be noted, in passing, that the military toys have been imported from foreign countries, where war has been considered the climax of virtue, and where little children, especially in the royal families, were systematically imbued with a spirit of military prowess. The consequences are written so large that "the wayfaring man though a fool cannot err thereby." International peace will begin in the nursery, in the training in ideals of activity and heroism that are constructive and helpful, not destructive.

In "A Story of a Sand Pile", Doctor G. Stanley Hall comments: "It is a striking feature, to which I have observed no exception, that the more finished and like reality the objects became, the less interest the boys had in them. As the tools, houses, etc., acquired feature after feature of verisimilitude, the sphere of the imagination was restricted, as it is with too finished toys, and thus one of the chief charms of play was lost."

Dolls. In a questionnaire-study made by Clark University of children's interest in dolls, eliciting returns from nearly a thousand children, the following interests were noted.

(a) The favorite dolls were simple, even rude, with few accessories, curly hair, four to twelve inches in size, could be washed and handled in every way, taken everywhere.
(b) Dolls representing children or adults were preferred to baby dolls.
(c) Interest in very small or very large dolls, and paper dolls, developed after eight or nine years.
(d) Boys preferred dolls representing monkeys, animals, heroes, dragons, etc.

Quoting from Doctor Hall's comments on this study:

> The educational value of dolls is enormous. It educates the heart and will even more than the intellect, and to learn how to control and apply doll-play will be to discover a new instrument in education of the very highest potency. Every parent and every teacher who can deal with individuals at all should study the doll habits of each child, now discouraging and repressing, now stimulating by hint or suggestion.
>
> Too many accessories lessen the educational value of this play in teaching children to put themselves in the parents' place, in deepening love of children, and of motherhood. Children with French dolls incline to practice their little French upon them; can this tendency be utilized in teaching a foreign language to young children? . . .
>
> The rudest doll has the great advantage of stimulating the imagination by giving it more to do than does the elaborately finished doll. It can also enter more fully into the child's life, because it can be played with more freely without danger of being soiled or injured. With rude dolls, too, the danger both of hypertrophy and of too great prolongation of the doll instinct is diminished. The child's interest is opposed to large, elegant French dolls which teach love of dress and suggest luxury, and dolls with too many mechanical devices, as for winking, walking, speaking, and singing, against which the Russian Toy Congress has so strongly protested. Rather small and durable dolls, soft enough not to hurt, flexible, with two or three colors and not more than two or three garments, along with plenty of hints regarding clothespins, flowers, and other varied material, — something like this seems to be the suggestion for a first doll, with increasing variation in size, material, elaborateness, and number till the doll passion vanishes in two dimensions, with innumerable paper dolls, towards adolescence.
>
> That boys are naturally fond of and should play with dolls as well as girls, there is abundant indication. One boy in a family of girls, or boys who are only

children, often play with dolls up to seven or eight years of age. It is unfortunate that this is considered so predominantly a girl's play. Most boys abandon it early or never play, partly because it is thought girlish by adults as well as by children. Of course, boy life is naturally rougher and demands a wider range of activities. The danger, too, of making boy milliners is of course obvious, but we are convinced that, on the whole, more play with girl dolls by boys would tend to make them more sympathetic with girls as children, if not more tender with their wives and with women later. Again, boys as well as girls might be encouraged to play with boy dolls more than at present, with great advantage to both. Boys, too, seem to prefer exceptional dolls, clowns, brownies, colored, Eskimo, Japanese, etc. Boys, too, seem fonder than girls of monkey and animal dolls, and are often very tender of these, when they maltreat dolls in human shape. Again, dolls representing heroes of every kind and non-existent beings, dragons, and hobgoblins find their chief admirers among boys.

It seems to be about the age of six, three years before the culmination of the doll passion, that the conflict between fancy and reality becomes clearly manifest. Abandonment to the doll illusion and the length of the doll period decreases as dolls and their accessories become elaborate. With every increase of knowledge of anatomy or of the difference between living tissue and dead matter, between life and mechanism, this element of doll play must wane.

Tests of Good Toys

Lovable

Durable in composition and workmanship

Stimulating to imagination, analysis, invention, initiative, activity, workmanship

Adapted to experimentation, investigation or constructive purposes

Adapted to the child's stage of development, viz., his motor ability, his interests, his mental development

Sanitary, washable; without inaccessible corners to harbor dirt and germs

Artistic in form, color, expression; that is, simple in design, harmonious in color, genuine, without either sentimentality or thorough realism

The purpose of toys is not merely to amuse the child but to call forth fuller expression of his self-activity.

Harmful Toys

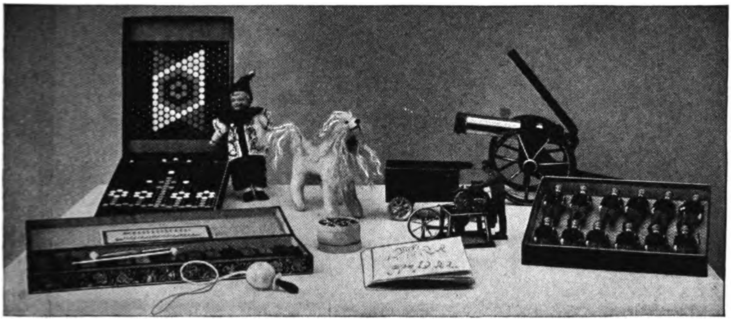
Unpardonable Defects

Physical:

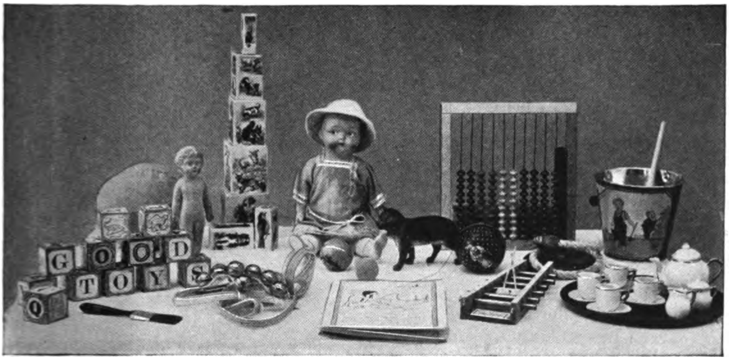
- Dangerous: having sharp edges, corners or points; pins or tacks, small bells, buttons, ornaments, that may be pulled off and swallowed
- Unhygienic: not washable; paint or dye that runs; made in unsanitary factory; too small for child's stage of development
- Inartistic: jangling, harsh, metallic, discordant sounds; unsymmetrical, poorly proportioned, ugly shapes; unharmonious or harsh colors; simpering, ugly, or unwholesome expressions on dolls or animals.
- Flimsy in material or workmanship

Psychological:

- Mechanical, merely amusing the child, making him only a spectator instead of providing a means for his own creative activity
- Military, demoralizing for the following reasons:
  - (*a*) they cultivate the spirit of destructiveness rather than constructiveness;
  - (*b*) they foster callousness toward the value of human life;
  - (*c*) they give a wholly wrong impression of the meaning of war, omitting its destructive social and industrial effects, and overemphasizing the joy of its enthusiasm and rhythm.
- Over-realistic, super-refined, — especially dolls



Unhygienic, Inartistic, Anti-social Toys.



Hygienic, Durable, Constructive, Social Toys.

Especially to be avoided under six years are toys having:

sharp points, corners, edges;
small bells or detachable ornaments;
paint which easily comes off;
flimsy toys easily broken;
woolly animals (unless washable and washed);
popguns;
fine material, sometimes sold as "Kindergarten material", *e.g.*, sewing cards, paper mats, straws, small beads, sticks, peg boards, crayons, blocks.

Mechanical Toys. Doctor Hall comments on this:

Mechanical toys, more than any others, seem to have the shortest existence in the hands of bright, active children, a fact which suggests that toys so constructed as to show principles of motion and elementary physical laws, without involving their own destruction, are an educational need yet to be supplied. This destructive form of curiosity, due to normal development of mentally active children, needing guidance, and to be furnished with a proper outlet, but not repressed, is not to be confused with the careless destruction of toys, due to lack of interest, which is unfortunately common in children whose interests and powers of appreciation have been weakened and dissipated by overloading them with toys and diversions until it has bred in them an ennui which has sapped their power of attention and left them incapable of self-entertainment. Healthy children, if allowed to develop under normal conditions, find interests and amusements for themselves, and the child who has been so reared that he wants to be constantly amused, and has no keen desires because they have been too frequently anticipated, has been deprived of one of the rights of childhood.

A baby's early motor interests are in the things which he himself can do, and disappointed friends and relatives have often found their gifts of mechanical toys a failure, simply because they have too far anticipated the natural development, and the toy has proved either a source of fear or failed to excite special interest. In fact, even at a later period, mechanical toys which are too complicated in construction or too delicate to bear investigation, which are apt to be clumsy, soon lose their attractiveness, while something that can be taken to pieces and put together by unskilled fingers, so that it will "go again" may prove of continued interest.

And Kate Douglas Wiggin writes: "Every thoughtful person knows that the simple, natural playthings of the old-fashioned child, which are nothing more than pegs on which he hangs his glowing fancies, are healthier than our complicated modern mechanisms, in which the child has only to press the button and the toy does the rest."

The Treatment of Toys. The right treatment of toys has far-reaching educational values in orderliness, thrift, prudence, depth of emotion, generosity, genuineness. The child who has a small number of durable toys that will stand the strain of usage and therefore accumulate years of associations and emotions, is having an education in genuineness and emotional strength, while the child who has a great number of flimsy toys that rapidly disappear is being trained in superficiality and shallowness. The child whose toys are promptly repaired when broken is being trained in prudence and orderliness, and still more so when, even during his second year, he is responsible for keeping them orderly and neat. The child who is surfeited with gifts, or who is allowed to spend his pennies prodigally for cheap jimcracks, is being trained in extravagance, shortsightedness, and discontent; while the one who is given a reasonable number of gifts and is taught to save his pennies and think carefully of worth-while toys to buy, is being trained in thriftiness, foresight, and satisfaction.

A Guide to Toys for Children

First Year. Utilizing hand, forearm, upper arm.

Sensory and Motor Experience

1 to 4 months:
- Rod to grasp
- Rubber or celluloid ball or doll
- Semi-sphere of rubber or wood

4 months:
- Celluloid dumb-bell

5 months:
- Montessori sand boxes
- Paper to crumple
- Small enamel or tin cup

6 months:
- Wooden ball
- Mirror, pocket size, in frame
- Spoon
- Leather reins to pull upon, with musical bells
- Rubber balls, each covered with one of primary colors (crocheted of cotton or silk)

8 months:
- Picture book, linen, large, colored pictures
- Small hand bell
- Water toys — fish, swans

9 months:
- Kitchen utensils in variety of shapes, sizes (no sharp edges or points, non-breakable)
- Rolling pin, pie tins, clothespins
- Football

10 months:
- Hard vegetables and fruits; potato, apple, squash, cucumber, carrots, eggplant (shapes, sizes, colors)

12 months:
- Japanese gong
- Tube
- Rubber, wooden, or celluloid toys, *e.g.*, doll, dog, cat

One to Two Years. Large size implements for forearm, whole arm, trunk; sensory and motor experience; color, sound, experimentation.

Wooden mallet, large nails, and bar of soap
Sand box and stones
Bucket and spoons, dipper
Variety of balls
Football
Wooden blocks 2 × 4 inches
Nests of balls, dolls
Spools
Kitchen utensils
Hard fruits and vegetables
2 or 3 dolls; 2 or 3 toy animals (rubber, celluloid, or wood)
Chair swing
Stationary ladder, 4 to 6 rungs
Rope to pull up weight
Montessori wooden cylinders

Two to Four Years. Utilizing fundamental muscles, sensory and motor activities, imagination, construction.

Imaginative Play

Dolls: Unbreakable, washable, 4 to 12 inches long baby and adult dolls; girl and boy dolls
Doll accessories: Pewter or enamel dishes, cooking utensils, stove
Laundry equipment, especially tub and flatiron; broom
Doll cradle
Doll's house
Noah's Ark: Dogs, horses, cats, bears, in rubber, celluloid, wood
Jack-in-box
Nested balls, dolls

Outdoor, Active

Wheelbarrow, wagon
Train of cars, boat
Velocipede
Fire engine
Horse reins
Garden tools; pail and shovel

Balls: Football, large rubber with pictures; wooden; small rubber with spectrum colors
Tenpins
Rubber balloons

Constructive

Blocks; large size, as paving blocks, in hard wood, utilizing trunk and arms, for floor use; 2-inch cubes and half-cubes for table use; cut exactly to inch measures, if possible; range of sizes for towers; interlocking blocks
Montessori tower and stair
Carpentry tools; real tools in child's size
Sand, modeling clay, paints, large size crayola; blackboard or large sheets Manila paper (2 × 3 feet)
Large wooden beads, pegboard
Sliced animals, birds
Soap bubble apparatus
Sticks in ¼ and ½ inch diameters, assorted lengths, 4 to 36 inch; plain, or dyed in primary colors
Color bobbins, spools, blocks
Quart and pint measures
Sand forms
Clothespins, boxes, spools
Stones, leaves, twigs, acorn cups
Zinc sand box; can be purchased; or a box may be made, having boards free from splinters, or planed smooth, lined with zinc (leaving no rough edges or corners), or made waterproof with several coats of cheap varnish.
Toy bank
Musical toys:
  Triangle, tubephone, musical bells, drum, trumpet, horn (with care for mouth hygiene); toy musical notes and bars for later months

Four to Six Years. Fundamental muscles. Imagination, construction, measuring; experimenting with mechanical principles, simple chemistry, electricity; making toys.

Imaginative Play

Dolls (for both girls and boys)
  Unbreakable, washable
  Representing children of different races, countries
Doll accessories:
  Carriage, trunk
Doll houses more complete
Stove and cooking utensils more ample
Laundry equipment that can be used
Indian suits (fireproof)
Punch and Judy
Toy theater
Kaleidoscope; magnets

Musical

Continue those of previous period
Wind harp, bugle or flute, tambourine, musical bells and glasses, toy piano

Outdoor, Active

Continue those of previous period
Garden tools, usable
Watering can, trowel
Tenpins, top, hoop, ringtoss
Balls (add bouncing ball, volley ball)

Constructive

Continue those of previous period
Blocks as previous period; add round, triangular, cylindrical; variety of geometric shapes
Stone mosaics (1 to 2-inch size) for parquetry
Picture puzzles
Paint book, drawing paper
Blunt scissors
Paste
Foot rule, yardstick
Gill, gallon, peck, bushel measures
Counter or small spring scales, weighing accurately

Thermometer
Meccano, interlocking blocks
Apparatus for constructing toy telephones, signals, motor toys

Six to Nine Years. Accessory muscles utilized. Imagination, imitation, construction, measuring, industrial play, making many toys.

Imaginative Play

Dolls (add china, bisque, paper)
Dolls representing other nationalities, historic or literary characters; stunt dolls
Doll accessories, both smaller and larger sizes; china dishes
Dominoes, checkers
Toy store
Toy theater
Toy money, stamps

Musical

Whistles, bugle, flute, mouth harp (care for mouth hygiene)
Autoharp or zither, toy piano (musical quality); violin or cello
Toy notes and bars; music note blocks

Outdoor, Active

Balls (add volley, hand, medicine, football, rubber bouncing)
Baseball and bat
Marbles, jackstones, tops
Kites, bow and arrows, battledore, grace hoops, jumping rope
Skates (both feet), stilts
Croquet, tennis racket, punching bag
Substantial wagon, trains, garden tools

Constructive

Blocks: Anchor, 1-inch sizes; dominoes, checkers
Knife, modeling clay, sand, paints, paint book, small crayola
Weaving frame; small beads, raffia, reed
Scrap pictures; straws, pasteboard parquetry
Stencil blocks
Apparatus for making toys, as in previous period
Camera
Radiopticon
Stereoscope
Clock that can be taken apart

CHAPTER XVI

STORY-TELLING

Value of the Story. Story-telling is the true pedagogical method of instruction, and to some extent of education, in early childhood. The story has many values, spiritual and intellectual. The wise teacher will use it to (1) entertain, (2) enlarge the experience by giving pictures of other children, homes, lands, social and geographic situations which no one child could experience, (3) acquaint the child with world characters and literature, (4) increase the vocabulary and the use of language, (5) cultivate imagination and concentration, (6) portray the effects of wisdom or foolishness, (7) present ideals of life, (8) give inspiration, courage, faith, sympathy.

What to Choose. Stories should be selected that will give the greatest number of these values, and that are suited to the stage of development of the children to whom they are told. In this age of cheap printing and authorship, the mediocre is always at hand, and the most valuable must be searched for as precious jewels. Life is so brief that there is not time even for all of the best.

The best story must first be true, not necessarily in a realistic sense of having actually happened to a certain individual in a historical time and geographical location, but it must be true in expressing the eternal verities, the principles that govern the universe. This rules out the tale in which error or vice succeed, or in which brute strength conquers spiritual strength.

In the "true" myth, fairy tale, or allegory, Right eventually triumphs as it actually does in the universe, although possibly long delayed; wrong is punished; error and ignorance bring their unhappy consequences; wisdom and skill conquer circumstances; and the forces of the universe (whether presented as natural forces or as gods, fairies, or Providence) assist those who strive for righteousness and to assist their fellows.

It must next be vital. No less vicious and undermining than the untrue story is the weak, sentimental, mawkish, dull, or mediocre tale. In the reaction against such, and for want of a guide, children of reading age resort to sensational, flamboyant, lurid tales found on any cheap stationer's counters and even in respectable editions in these days. Other children unfortunately take to such pabulum temperamentally.

It must also be positive, not negative. Moreover, the grewsome, harrowing story, the hypocritical, the morbid, are equally a crime against childhood.

The story must be of interest to the children. It must, therefore, have action, dramatic quality, and for children under six, repetition, humor of situation, fun, brevity, rhythm.

How to Tell Stories. For the person who "cannot tell a story" as for the person who "cannot swim", there is one essential: forget *yourself* and plunge in, and practice until you have gained confidence.

1. Tell something in which you and the children are interested, and keep at it repeatedly until you feel at ease.
2. Recall stories that interested you at that age.
3. Tell stories the children themselves ask for, refreshing your memory by reading up a standard version, or by asking the children to tell it to you.
4. Study Mother Goose, Æsop, and Bible stories as models of the best story-telling.

5. Live the story as you tell it — see it as pictures in your own mind. Tell it so vividly that the children can play it out afterwards.
6. Use direct speech in telling conversation.
7. Make your pictures vivid by a few descriptive words, especially of colors and sounds; increase your vocabulary of adjectives.
8. Beware of making it too long; especially for very little people.
9. Use perhaps a very few natural gestures, but do not try to act it out. Children have not the mental ability to hear narrative and see action at the same time.
10. Children love the same story repeated, and they want it told *the same way*, in order to see the same pictures; therefore have your story clear in your mind the first time you tell it.
11. If you are telling a classic or standard story, respect it as it is, just as honestly as you would an historic or scientific fact. If you do not wish to tell it that way, don't tell it at all, but don't tinker it.
12. Do not try to memorize a story, except possibly the conversations.
13. If a story is clearly told, the child will usually absorb and discern the ethical principle involved, without any necessity on your part to obtrusively "point the moral." Sometimes a child will draw an erroneous or unexpected inference because his judgment is yet immature or his ethical experience is elementary or perverted. Under such a condition, try to tell another story that will concretely clear his thought.

When you are able to tell a story spontaneously, joyfully, forgetting yourself, losing yourself in the story and in the children's interest, you will be ready to study story-telling as a science and an art, and you will have learned by your experience some of the fundamental principles of the art.

The first requisite, however, is spontaneity, naturalness, self-confidence. To attempt to study method before attaining this quality is to incur the danger of substituting " finish " for vitality.

Times and Occasions. For effective story-telling choose the time when the child can give attention, and when the environment is without disturbing influences of noise, sights, other interests, interruptions. There are occasions, however, when the child is restless, tired, irritable, when a story that has much of rhythm and repetition will soothe him.

It is certainly unwise to try to secure his concentration when he is hungry, or eager for active exercise. Bedtime stories usually should be told before the child is undressed, and should be of a quiet, sedative kind, that the child may not be kept awake either through excitement, or thinking on vivid pictures.

Let the child have opportunity to absorb it into his soul. Therefore wait for the child, in his own time, to give it back, either by telling it, dramatizing, painting, drawing, cutting, modeling. This will foster the child's initiative. When the child himself asks " What shall I do " is time enough to suggest directly such reproduction. Meantime, as a means of suggestion, it is valuable thus to illustrate a story yourself some time after it is told — immediately or some hours or days later. When the child is ready, he will imitate and ask to do it also, but his response should be spontaneous on his part, and of his own initiative.

Selection of Stories. Story-telling naturally begins in the latter part of the first year, with simple finger plays, and the cadence of Mother Goose. Here belong " This Little Pig", " Open the Door", " Ride a Cock Horse", and other simple rhythmic nursery rhymes.

In the second and third year, more of the simple finger plays, such as " Here's a Ball for Baby", and the Mother Goose rhymes that have much repetition, can be used. During this stage the child loves little anecdotes about babies, dogs, cats, mother, father. In the " tell it again " stage from two to six the child enjoys following a sequence of incidents and seeing the pictures.

It is in the fourth or fifth year that his imagination and store of mental pictures is sufficiently developed so that he can make up stories of his own, and now his imagination is not yet limited by an appreciation of realities. This is the stage when fairy tales and myths begin. Interest in nonsense syllables, long words, rhyme, absurdity of statement, humorous situations, is now ripening.

In the fifth and sixth year he is ready for fables, and other animal tales such as those of the Jungle Books, for stories of primitive life, for Hiawatha told in Longfellow's original version.

In the sixth and seventh year his horizon is widening beyond his own immediate home and times. He is ready for little stories about children or grown-ups of other countries and times, for historical incidents, great adventures. Children can now begin to follow the continued story, and this is excellent training in concentration; or they can be told the beginnings of a story, and the situation left as a problem for their own imagination to work upon.

The stories that the child himself tells are always a clue both to his interest and his mental development. The story he can tell will represent a simpler stage in development than the story he can appreciate and absorb.

Where to Find Stories. Mother Goose is the true classic of the nursery. It must be wisely selected, however, for children. There is much that is crude, and rude, as in all folk tales, and this should be culled out.

Fairy tales and fables also need to be carefully selected. Andersen's are ideal, allegorical, true. Grimm's and Abbott's are collections of German and English folklore. They, too, need careful selection. Many of them reflect the undemocratic conditions of an older form of government — the cruelty of the autocrat, the superficial superiority of wealth and station, the resentment of the oppressed. Felix Adler points out that Æsop's Fables reflect this resentment of the oppressed against the oppressor, and the trickery of the former to match the power of the latter.

The great world myths, both of the Greeks and the Anglo-Saxons, should become the early heritage of every child. Simple incidents from the Iliad and Odyssey, from Greek and Norse mythology, from the Siegfried stories, Beowulf, the legends of King Arthur, can be told during the fifth and sixth year, thus giving a first speaking acquaintance with these epics.

The following list is suggestive of types adapted to each age; it does not attempt to be exhaustive. There is so much of the classic and permanently good, far more than any one child could possibly absorb, that it is a double loss to the child if he is given the trashy and mediocre. The ambitious parent needs to take care that the child has time to think over, feel vividly, see clearly, the tales he is told, and that too much is not given in one year.

A Guide to Stories and Poetry

Six Months to Two Years. Rhythm, repetition, simple word-pictures of familiar objects or experiences; nonsense syllables.

Six Months to One Year. Chanting or singing nursery rhymes. Reading of great rhythmic poetry for sake of rhythm and feeling.

One to Two Years

Mother Goose:
  Ride a Cock Horse
  Jack and Jill
  Humpty Dumpty
  Hey Diddle Diddle
  Baby Bunting
  Rock-a-bye, Baby
Poems and Songs:
  Sleep, Baby, Sleep
  What does Little Birdie Say
  Wee Willie Winkie (Brewer)
  Hush, my Dear (Watts)

Stories:
  Simple incidents of children, animals, birds
Folk Tales:
  Three Bears
  Old Woman and Her Pig

Two to Three Years

Mother Goose:
  Little Boy Blue
  Little Bo-peep
  Little Tom Tucker
  Little Miss Muffet
  Pease Porridge Hot
  Hickory, Dickory, Dock
  Old Mother Hubbard
  Cock Robin
Poetry:
  Little Drops of Water
  I Love Little Pussy
  I Saw a Ship A-Sailing
  Lady Moon (Houghton)
  Friendly Cow (Stevenson)
  Little Lamb, Who Made Thee (Blake)

Folk and Fairy Tales:
  Three Little Pigs
  Henny Penny
  Goody Two Shoes
  Slovenly Peter
  Elves and Shoemaker
  Babes in the Woods
Greek Myths:
  Apollo and his Sheep
  Mercury
Norse Myths:
  Thor and his Chariot
  Frey and her Weaving
Bible Stories:
  Moses in Bulrushes
  Christ Child in Manger

Three to Four Years

Mother Goose:
  Song of Sixpence
  Lucy Locket
  Old King Cole
  Simple Simon
  There Was a Crooked Man
  If All the World Were Paper
  The Man in the Moon
  Three Little Kittens

Poetry:
  Twinkle, Twinkle, Little Star
  My Shadow (Stevenson)
  The Baby (MacDonald)
  Spring (Nash)
  Owl and Pussy Cat (Lear)
  The Jabberwocky (Dodgson)
  Pied Piper (Browning)
  How the Waters Come Down at Lodore (Southey)

- Folk and Fairy Tales:
  - Tom Thumb
  - Sleeping Beauty
  - Jack and Beanstalk
  - Diamonds and Toads
  - Rose Red and Snow White
  - Jungle Books
- Greek Myths:
  - Arachne
  - Latona and Frogs
  - King Midas
  - Narcissus
  - Phaëton
- Norse Myths:
  - Thor and his Glove
  - Thor and his Hammer
  - Thor at Jotenheim
- Bible Stories:
  - Jesus blessing little children
  - Jesus healing Jairus' daughter
  - Garden of Eden
  - The Flood and the Ark
  - David and his Harp
  - Daniel
  - Elijah and Ravens

Four to Six Years

- Mother Goose:
  - One, Two, Buckle My Shoe
  - As I Was Going to St. Ives
  - When Good King Arthur Ruled this Land
  - Where Are You Going, My Pretty Maid
- Poetry:
  - Which Way Does the Wind Blow?
  - Robin Redbreast (Allingham)
  - The Fairies (Allingham)
  - Laughing Song (Blake)
  - The Year's at the Spring (Browning)
  - Ariel's Song (Shakespeare)
  - Come, Follow, Follow (Shakespeare)
  - Lullaby for Titania (Shakespeare)
  - Answer to Child's Question (Coleridge)
  - Nonsense Songs (Lear)
  - Love Songs of Childhood (Field)
  - Book of Joyous Children (Riley)
  - Child's Garden of Verses (Stevenson)
  - Hiawatha (Longfellow)
  - America
- Biography, History and Travel:
  - Robinson Crusoe
  - Columbus' Voyages
  - Mayflower and Pilgrims
  - Paul Revere
  - John Smith and Pocahontas
  - Betsy Ross and the flag
  - Stories from childhood of
    - Benjamin Franklin
    - Abraham Lincoln
    - Edison
    - Mozart
- Norse Myths:
  - Journey of Thor
  - Finding of the Hammer
  - Loki's Tricks
  - Youth of Siegfried
- Folk and Fairy Tales:
  - Dick Whittington
  - Ugly Duckling
  - Discontented Fir Tree
  - Epaminondas
  - Thumbelina
  - Beauty and Beast
  - Gulliver's Travels
  - Just So Stories
  - Uncle Remus
  - King of Golden River

Fables:
- Dog in Manger
- Lion and Mouse
- Hare and Tortoise
- Bundle of Sticks
- Ant and Grasshopper
- Sun and Wind
- Boy who cried "Wolf"

Greek Myths:
- Ceres and Persephone
- Philemon and Baucis
- Orpheus and Eurydice
- Io and the Gadfly
- Pygmalion and Galatea
- Ulysses
- Callisto and Arcas
- The Wooden Horse
- Jason and the Golden Fleece
- Vulcan

Bible Stories:
- Creation Story
- Child Samuel
- Joseph and his Brethren
- Children of Israel in Egypt
- The Passover
- Journey to the Promised Land
- David and Goliath
- Samson
- Ruth
- The Boy Jesus
- Jesus feeding the Multitude
- The Resurrection

Juveniles:
- The Goops
- Alice in Wonderland
- Through a Looking Glass
- Rip Van Winkle

Six to Nine Years

Poetry:
- Piccola (Thaxter)
- The Sandpiper (Thaxter)
- Song of Spring (Hemans)
- Pilgrim Fathers "
- Bugle Song (Tennyson)
- Sweet and Low "
- The Brook "
- We are Seven (Wordsworth)
- The Daffodils "
- My Heart Leaps Up (Wordsworth)
- The Cloud (Shelley)
- Ode to Skylark "
- The Children's Hour (Longfellow)
- Village Blacksmith (Longfellow)
- Psalm of Life (Longfellow)
- Building of Ship "
- Evangeline "
- Tales of Wayside Inn (Longfellow)
- A Morning Song (Heywood)
- Hark! Hark! the Lark (Shakespeare)
- Indian Summer (Whittier)
- Barefoot Boy "
- For a' That (Burns)
- Highland Mary (Burns)
- Annie Laurie
- Wind and Moon (Macdonald)
- Old Oaken Bucket (Woodworth)
- Robert of Lincoln (Bryant)
- Vision of Sir Launfal (Lowell)
- Lochinvar (Scott)
- Midsummer Night's Dream (Shakespeare)

Folk and Fairy Tales:
- Andersen's Fairy Tales
- Jataka Tales
- At Back of North Wind (Macdonald)
- Arabian Nights

Greek Myths:
- Labors of Hercules
- Laocoön
- The Odyssey
- Tales from Ovid

Norse Myths:
- Sigurd the Volsung (Morris)

Classic Tales: (selections)
- Canterbury Tales
- Fairie Queene
- Tales from Shakespeare
- Pilgrim's Progress

Legends:
- Beowulf
- King Arthur
- Robin Hood
- American Indian Legends

Bible Stories:
- Life of Jesus, including Crucifixion
- Abraham
- Jacob
- Joseph
- Moses
- Joshua
- David
- Solomon
- Daniel
- Esther
- Elijah
- Paul

Biography, History, Travel, Science:
- Local pioneer history
- Pilgrim Fathers
- William Penn
- Washington
- Lincoln
- Significant historic tales from
  - England
  - Vikings
  - Pharaohs
  - Greek
  - Roman
- Incidents from life of
  - Homer
  - Copernicus
  - Galileo
  - Caxton
  - Eli Whitney
  - Longfellow
  - Whittier
  - Harriet Beecher Stowe
- Swiss Family Robinson
- Darwin's Voyage of Beagle
- The Snow Baby (Peary)

Juveniles:
- Pinocchio (Collodi)
- Hans Brinker (Dodge)
- Birds' Christmas Carol (Wiggin)
- Mrs. Wiggs (Rice)
- Five Little Peppers (Sidney)

CHAPTER XVII

SCIENCE AND HISTORY

" True human wisdom has for its bedrock an intimate knowledge of the immediate environment and trained capacity for dealing with it. The quality of mind thus engendered is simple and clear-sighted, formed by having to do with uncompromising realities and hence adapted to future situations. It is firm, sensitive and sure of itself."

— JOHN DEWEY.

" No book or map is a substitute for personal experience; they cannot take the place of the actual journey."

—*Ibid.*

" The destiny of nations lies far more in the hands of women — the mothers — than in the hands of rulers."

— F. FROEBEL.

Cultivating a Scientific Mind. Science is concerned with causes and effects, laws and principles of action, systematic classification of facts, exact knowledge of facts. A scientific habit of mind is developed in the little child by encouraging curiosity, exploration, experimenting, collecting, questioning; by consistent parental action and discipline, honesty and sincerity in statements, the answering of questions so as to provoke further thought.

Usually a child needs little stimulus to interest in natural science. Everything in the world is new to him. The baby is interested in every object he can touch, in shining or moving objects. The toddler is interested in moving things, especially animals, trains, clocks; in sticks, stones, and leaves because he can use them. The little child from three to six is interested in sun, moon, and stars, in day and darkness, in rain, snow, wind, in flowers and trees, as well as in animals and birds. Natural, spontaneous questions regarding the biological origin and development of life are asked between three and eight, and this is the period especially recommended for teaching the child of the mother's part in his prenatal care, and the value of the father's share, and thereby fostering his wholesome attitude of gratitude, and his respect for all motherhood and fatherhood. At four or five, rivers, lakes, hills, valleys, the time of day, attract his attention. Processes of mechanics, filling and emptying, pouring, pulleys, wheels, are matters of keen interest from early in his second year.

There is an early stage when he asks "What?" meaning what is its name. Later comes the "Why?" which is a search for physical causes and reasons, and also for philosophical reasons.

Learning the Fundamental Facts. The teacher of the very little child must first know what are the fundamental facts in science. Too often the traditional school training has given an intensive acquaintance with one or two sciences, so detailed that the fundaamental foundations are obscured. The teacher of the very little child needs, instead, a comprehensive knowledge of many sciences, in their broad basic outlines, — especially physics, chemistry, nature-study, biology, physical geography, geology, astronomy, industrial geography and industrial processes, the story of primitive life and industries.

Nature Study That is Worth While. Moreover, her knowledge should not be purely impersonal; it must be human, poetic, related to industry and religion. The sense of wonder and of nurture is strong in the little child. He is more interested in feeding and caring for his rabbits or goldfish or flowers than in analyzing them, or describing their form or color; the latter are merely incidental in his interest, and they should be in his teaching. On the other hand, his knowledge of form, color, and such abstract qualities may well come quite naturally and incidentally through nature-study and handwork rather than through special apparatus, separated from real objects and life.

Geography. This comes naturally through his personal experiences. Maps, diagrams, globes, are complex and abstract and symbolic; they belong somewhere after six years, with most children not before nine years. The child must have arrived at the stage when he can think in terms of symbols, before he can really interpret them. It will do no harm to have a globe where he may see it, but it would be a fallacy to consider that he can really interpret it, and a mistake to attempt using it until he has grasped the idea of the bigness of the earth on which he lives. Maps will not be interpretable until later. He may point to places on the map, but without appreciation of their meaning. Somewhere between six and ten years of age he may begin making a "map" of the imaginary country he has built in the sand box, with rivers, lakes, cities; or of the room, locating the articles of furniture; or of the street, locating the houses, sidewalks, telegraph poles, first drawing freehand, and when more advanced, drawing to scale. At three or four years, with his sand pile, he can reproduce forms he has seen — hills, valleys, rivers, lakes. He will want to use real water for rivers. It is well to let him experiment with this until he is dissatisfied because of its disappearance, and then look for play substitutes, — gray, blue, or green yarn, paper or cloth, mica. It is more important that it should be representative to *him* than to his elders.

Real geography comes through seeing places and people. The little child under five or six belongs naturally in the country, where he has the opportunity for acquaintance with physical geography in many forms. Great variety of natural objects and experiences should be provided. On the other hand, intensive acquaintance with only a few people or nationalities is better. After four or five years of age, he is able to stand the excitement of traveling, and the risk of dust and crowds, and he is ready to profit by seeing other people, cities, customs, ways of traveling, industries. The least journey to a new environment is valuable, to enlarge his perspective and his sympathies. Even at three or four he likes to see pictures of other children in other countries, and how they live, — their houses, clothes, food, toys, pets. Especially is he attracted by stories of primitive, outdoor life. The story of Hiawatha, in Longfellow's original, is well adapted to the sixth year, and some children love it and enjoy it earlier.

Dolls may be dressed to represent children of different lands. The sand box may be used to represent tropical, arctic, mountainous, agricultural, fishing, mining countries and scenes. Scrapbooks can be made for each country, with pictures from magazines, railroad or steamship folders, post cards. Foreign magazines may be obtained, in the east, through Brentano's (New York). Correspondence could easily be arranged with a child in some foreign country if not through personal acquaintances, at least through some foreign school, mission, society, or consul. Early acquaintance with the children of other countries cultivates a feeling of sympathy that is the foundation of world fellowship and international peace. If there is opportunity to learn a few colloquial sentences in some of these languages, this will still further deepen the child's sympathy. After six years, when his interest in collecting is strong, foreign stamps, flags, emblems, flowers, pictures, will be as keenly interesting to him as cigar labels or other inconsequential but glittering objects.

Industries. Let him see as many as possible of the forms of industry, especially the primitive simple forms, such as gardening, farming, care of animals, horse-shoeing, baking, sewing. He should go often to the grocery store (not during the busy hours) to see the different kinds of foods. Better yet, he should see some of these vegetables and fruits growing, the wheat and corn standing in the fields. He should see the ploughing, planting, weeding, harvesting; the feeding and the milking of the cow; the hauling and preparation of fuels. Little comment is necessary beyond remarking how everything that we eat or wear has come to us because other people have worked hard to make it grow, or to bring it or prepare it for us, and therefore we owe our thanks to all who have worked for our comfort. Thus from his own experience he may know and appreciate the postman who brings the letters, the fireman who hurries to put out the fire, the policeman who helps us across the crowded street and watches night and day to keep us protected from harm and danger, the street-sweeper and sprinkler who keep the streets clean, the man who brings the coal or wood or groceries, the street-car conductor and motorman, the engineer and fireman on the train that takes us about the country or brings the freight.

Through gratitude for the hard work that others do for him he will also learn to respect all labor, even though it does cause dirty hands and faces and clothes, and he will naturally infer that it is his duty to do his share and to work also for others.

History. Children, like savages, are historically near-sighted; they have not yet the experience to appreciate historic time; every event is located near the present, and their interest in history is more or less fictitious and artificial. This is the period for the great myths, for imagination now exceeds experience, and any adventure is credible.

There comes a time, about six years of age, when children begin to ask for a "true" story, meaning a realistic story, historically true. Then is the opportunity to recount the experiences of mothers and children, as well as of brothers and fathers, in other times. Nor need these be limited to his own country or modern times. "Once upon a time" or "A long, long time ago" is somewhere back in a vague sometime; yesterday or a million years ago are not yet spaced in his mind. This sense of time-duration may be developed by calling attention to it in his experience, for the two-year-old, day and night; in the fourth year, morning and afternoon, yesterday, to-day and tomorrow, seasons; in the fifth year, the days of the week and the months of the year will begin to have significance and sequence; in the sixth year, "last Christmas", "next Fourth of July", the date of this year, and the marking of duration, under various circumstances, of a minute, an hour, a day.

Of course, the little child will not be able to distinguish between different nations or races of the past; it is all one to him. This fact is easily overlooked by the eager teacher, who has so long since classified historic data in her own mind. This historical appreciation does not develop until the early teens.

For these reasons, it is good pedagogy to let the first historical stories be of the country in which the child lives. Historic sequence in the telling of these anecdotes is of slight importance.

Since so much of written history has hitherto been military and political, it is easy to fall into the error of telling stories of military experiences, especially wars and battles. In the light of modern developments, the superficialness and, for the child, the misleading effect of the usual military story should be clearly evident. It should not be made the ideal, nor a substitute for the adventure, courage, heroism, which the child craves and admires. The teacher's responsibility is to find historic tales of those who served their fellowmen by constructive bravery and venture, — life-saving, exploring, inventing. Even a simple, homely incident in the life of a noteworthy historical character will be an introduction to deeper acquaintance later. In American history, Columbus, the Pilgrims, William Penn, Benjamin Franklin, Betsy Ross, Eli Whitney, Edison, are a few examples. Stories from English history easily relate themselves to the little child's vision. The childhood of noteworthy men and women furnishes many stories for this age period.

The teacher needs to beware of the fallacy of reading to children or telling to them things which they can learn through their own experience, experimenting, or observation. Many informational books of this kind are at hand, both in science and history. The temptation often is strong, especially for the teacher who is eager that the child shall learn much, and who has not clearly distinguished between mere erudition, encyclopedic accumulation of facts and, on the other hand, the vital, living experiences of life, with the growing power to observe, interpret, and enjoy for one's self. The latter is dynamic, the way of wisdom.

Where museums or historical collections are available, there is a great educational opportunity, although much of the material is dead and unrelated to its natural situation.

Mathematics. The elements of arithmetic and geometry have but a slight place in the life or interest of the little child. At five or six he may begin to count objects, but his capacity is limited. The mere memorizing of numbers, as a series of words, is of no more mathematical significance than a nonsense jingle, and is not to be encouraged until, through his interest in counting, the child has an appreciation of the concrete meaning of numbers, at least to the range of ten or twelve. Measuring, using the actual standard measures of foot, yard, pound, pint, quart, gallon, dozen, is usually of interest at six or seven years. Interest in geometric forms is naturally slight, and even this is doubtless an æsthetic, not a mathematical, interest. Teaching of geometric form is easily overdone.

Reading and Writing. These have no place, biologically, before six years, and some psychologists say they belong psychologically after eight years, in the period of interest in symbols, abstractions, and rote learning. It is known that normal children who enter school at nine years usually finish the grades with those of their own age who started three years earlier. It is evident that with a natural outdoor environment, the child will acquire a better physique, a larger acquaintance with realities, and a richer development of invention, initiative, self-expression, than he does in the schoolroom. The ancient Greeks taught only games, dancing, and music to children under nine. Doctor G. Stanley Hall, Professor Lightner Witmer, Professor Arthur Holmes, Professor Clifton E. Hodge are among the authorities advising such late introduction to the use of abstract symbols. What can be done educationally in that period from six to nine years, without teaching the three R's, has been amply demonstrated by Mrs. Marietta Johnson in her school at Fairhope, Alabama, and at The Little School in the Woods at Greenwich, Connecticut.

CHAPTER XVIII

HANDWORK

> "No line of culture is complete until it issues in motor habits and makes a well-knit soul texture that admits concentration series in many directions and that can bring all its resources to bear on any point.
>
> "Fully assimilated knowledge that becomes a part of life is strength — but that which is undigested and not transformed into carrying power, but is a burden to be carried in memory, is an added cause of tension and fatigue."
>
> — G. STANLEY HALL.

THREE fundamental principles are to be noted:

1. All is grist that comes to the mill of the handworker.
2. The one element that will transform any object or combination of objects into a created product is imagination.
3. The purpose in the children's handwork is not the production of finished products, but creative self-activity, invention, self-reliance, the making of things to use, the utilizing of materials found in the environment, the putting of ideas into concrete form, the acquisition of dexterity with the hands, the development of brain centers through use of the hands.

The nursery, playroom or yard should have a corner for tools and materials adapted to the muscles of small hands and arms. A workbench of a height adapted to the child at each stage of his development, can be purchased at the large hardware stores, or can be made from a heavy packing box. Tools should be kept in good condition, and materials neatly shelved. The child at two years can begin to keep his workshop in good order.

Forms of handwork. The suggested list begins with the simpler forms and continues to the more difficult, in each group.

Painting: using a house-painter's brush for real or imaginary (with water) painting; freehand painting of pictures; painting in of large, simple drawings, made with heavy line
Drawing: freehand drawing of known or imagined objects; illustrating stories; copying simple borders or geometric designs; creating borders, patterns for wall paper, or other decoration
Paper tearing: simple circles, household utensils, tools, animals, trees, dolls
Paper cutting: as in paper tearing, when child can easily handle blunt-pointed scissors (about five years); cutting out pictures with heavy outline (not under five years)
Modeling: moldings and forms, learning to manipulate soft material; making beads, nests, dishes, furniture, dolls, animals
Carpentry: hammering, sawing, planing; making simple dolls' tables, chairs, furniture; making dolls' houses, children's furniture, wagons, toys

Tools.

Hammer, light weight
Wooden mallet
Small size, sharp saw
Coping saw
Small size, sharp plane
House-painter's brush
Vise
Gimlet
Screwdriver
File
Small, blunt scissors
Weaving frame

Materials. Whatever the habitat and environment provides.

The country child is the more blessed of the gods, for he has

Twigs, branches
Corncobs, silk
Acorn cups
Straw, hay
Milkweed pods

The city child can more readily find

Spools
Pasteboard boxes
Wooden boxes
Wooden buttons

Every child has at hand

Clothespins
Wrapping paper
Corrugated pasteboard
Match boxes
String, rope
Leaves
Vegetables
Scraps of cloth and leather

Purchasable material which may be useful, to be bought as needed, will include:

Whitewood, ¼ inch, in assorted widths and lengths
Whitewood, cut in circles, assorted sizes
Water colors, dyes, dry colors and shellac, large crayola
Glue, paste
Modeling clay, plasticine, plaster of Paris, Portland cement
Paper: bogus, cartridge, book-cover, Manila, builders', water color, drawing, colored, gold, silver, crêpe, tissue
Nails, tacks, and screws in assorted sizes
Cloth, yarn, leather, raffia
Board: bristol board, cardboard, binder board
Hinges, locks, staples
Brass paper fasteners
Paint boxes should contain only the three primary colors (red, yellow, blue) and black, so the child can learn to mix his own colors.
Labeled boxes for materials should be kept on the play shelves, and scraps of everything usable from the household kept in these.

Dry clay powder is the cheapest form of modeling material; composition clay or plasticine are cleaner.

Plaster of Paris and Portland cement are easy material for children to work with. They should be mixed with lukewarm water until the consistency of thick cream.

Dry colors purchased at the paint shop may be mixed with the dry clay powder, plaster of Paris, or cement, for color effects.

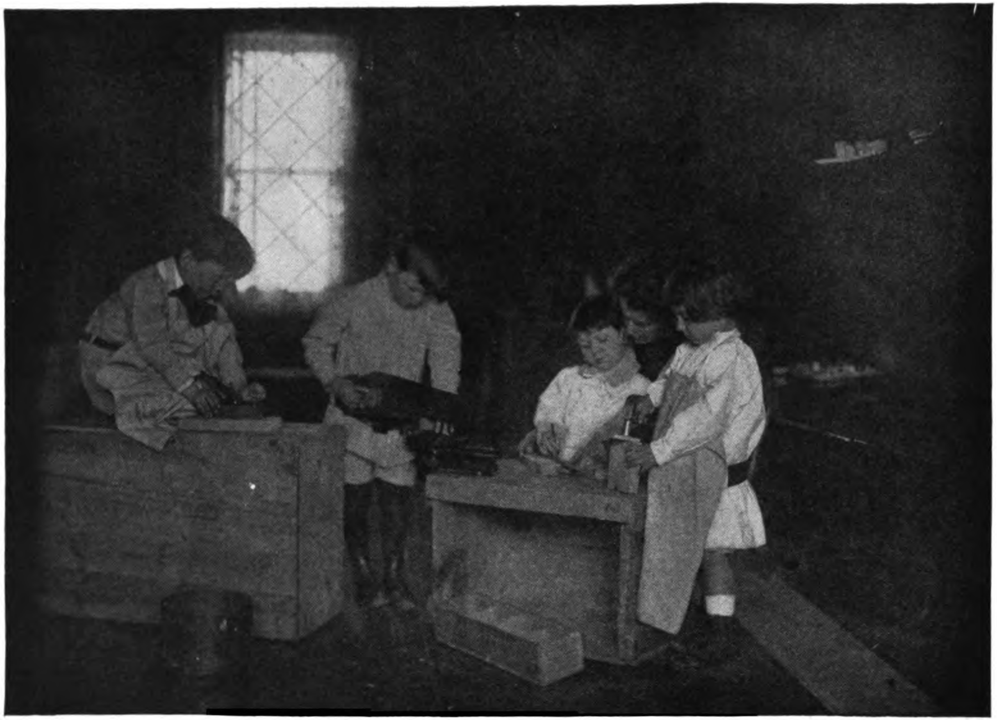
Children who live in the vicinity of a pottery can have their clay pieces fired. Enamel paint or water glass will waterproof clay. Decorations may be made with water colors or shellac varnish mixed with dry colors.

Handwork that is Injurious. The fine muscles of the fingers and eyes are undeveloped in the child under six years, and the nervous system is easily fatigued or overstrained. Handwork that involves use of small objects, as toothpicks, straws, lentils, peas, tiny beads, cambric needles, thread, 1-inch blocks, small papers, is a nervous strain upon the child. Fine lines, dots, holes, the following of a fine line in cutting or coloring, are also injurious to the eyes. Such fine material and work is no longer used in kindergartens that have respect for child hygiene.

Too long seated application to work at a table is also injurious. Half an hour is long enough for any child under nine years to sit still at work. If he is voluntarily absorbed longer, some active diversion should be arranged for a quarter hour, at least.

Work suggested that is too difficult for the child to do alone either discourages him by its impossibility, or develops dependence upon others.

Educational Values. The handwork is, educationally, a means of giving concrete expression to imaginative ideas, and of making the experience of the child more vivid. Stories, scenes from history, records of the child's own experience, can be portrayed. The child does not naturally copy literally from objects.



Handwork that Utilizes Fundamental Muscles.
In the School of Mothercraft Child Garden.

No effort should be made, before six years, to produce finished products. Technique or skill in production do not belong to this period. Vividness, self-expression, development of motor control of arms and hands, coördination of eye and hand, the joy of workmanship, the confidence in creating, — these are the purposes of handwork in early childhood.

The genetic method in handwork is to start with your idea of what you want to make, and then make it of such material as you can find. This is Nature's process, the child's process, of creating.

The list of ideas to be realized will fall into a few groups:

Dolls in great variety
Animals
Trains
Wagons and other vehicles
Boats
Houses, animal cages, churches, barns, stores
Doll clothes
Furniture
Dishes
Toys for store-keeping — all lines of merchandise
Toys for playing at occupation — all lines of industry
Games

If any genius is involved in handwork, it is in adapting any kind of material to the realization of any one of these ideas.

Dolls. Clothespins with cloth or paper tied on are about the simplest.

Corncobs, with "real" silk hair, clothes of corn husks or cloth make popular dolls. Arms may be made of cloth bags stuffed with paper, cotton, cloth, and sewed into the shoulder seam of the dress.

Rag dolls stuffed with cloth, the features and fingers marked in with ink or water color. Any one can cut a rag doll pattern from muslin. (For sanitary reasons, rag dolls are not so popular as they used to be.)

Nut dolls. Peanut dolls are made by using double nuts, sewed together to make the head, arms, legs and body; the features and hair marked with ink. Almond, hickory, hazel and walnut heads are used, attached to sticks or rag bodies. Corks, clay pipes, bone buttons, raffia, yarn, may be used for doll heads with these bodies.

Vegetable dolls. Carrots, potatoes, cucumbers, squashes may be used, and the features marked with ink or knife.

The temporary possibility of vegetable, nut, and other " stunt " dolls does not add to their popularity. They are of interest chiefly after nine years, when the doll interest is waning.

Paper dolls. Bodies made of stiff paper or pasteboard, with clothes that can be taken off and put on. Faces can be drawn with ink or water colors, or heads from pictures may be pasted on.

Such paper dolls must be of a size to handle with ease.

Paper dolls cut singly or in chains, by folding paper and cutting, are a source of amusement to children about five, and of creative enjoyment about eight, when there is the motor ability and imagination to create them in great variety.

Animals and Birds. Vegetable. Use large vegetables for body; twigs or toothpicks for legs; straw, string, yarn, for tails; pins, beads, buttons, cloves, currants, raisins, for eyes; leaves, paper, cloth, for nose and ears; gashes for mouth.

Paper. Cut out freehand, or from heavy outline, in newspaper, drawing paper, wrapping paper.

Pasteboard. Cut with strong scissors or with coping saw. These may have legs, heads, and tails made separately and attached with thread, string, or fine wire so they will move.

Wooden. Draw from paper designs, cut from whitewood or other soft wood, with coping saw. These, too, may have movable limbs.

Kindergarten supply houses publish a set of paper patterns for animals and one for birds.

Animals and birds may be colored with water colors. Or wooden ones may be painted " true to life", using the shellac and colors; about three coats are required. They are then waterproof, and the colors will not run. A paper or pasteboard support can be fastened to the back side of animals so they will stand up. Birds may be hung by a thread from the ceiling or window frame.

Boys who can whittle can carve out animals, thus providing some with three dimensions.

Houses. Houses are easily made from boxes by cutting out or drawing on doors and windows, with slanting or flat roofs of pasteboard or corrugated board. Porches, lean-tos, extensions, chimneys, steeples, gables, can be added by gluing or sewing on additional pasteboard. Castles, forts, silos, water towers are made from round boxes. Houses may be decorated with water colors.

Animal and menagerie cages are made by cutting out strips from one side of a box. Staircases are made of folded paper or bristol board.

Paper houses can be made from stiff paper, with doors and windows drawn or cut out. These are easily made, and a source of amusement for a rainy day, but not highly valued because not enduring.

Wooden houses are the joy of childhood. A house small enough to be convenient indoors, or large enough to play in outdoors, is one of the chief rights of childhood. For children under six or seven years, a packing box can be used. Two boxes of the same size make a two-story house. The children can scrub, sandpaper, paint, the outside and floors, design or saw out windows, put in partitions to divide into separate rooms, add a slanting roof and chimney. Doors may be added with hinges. Bricks may be made of clay and fastened together with cement or glue for a tiny brick house. Staircases are made of strips or blocks of the wood.

Children over seven can build a real wooden house with a little suggestion. They are also able to make small cement blocks for a block house. Boys of ten or twelve can make a log hut.

Trains, Wagons, Boats, Vehicles. Pasteboard vehicles can be made from spool boxes, candy boxes, match boxes. For wheels use spools, round wooden buttons, round box covers, milk bottle covers, circles cut from pasteboard. For axles use skewers, toothpicks, nails. Axles and wheels may be tacked, sewed, or pasted to the wagon. Axles may be dispensed with, and the wheels pasted directly to the wagon box. Dashboards, seats, canopies, foot rests, smokestacks, cowcatchers of paper or pasteboard can be pasted on, or attached with brass paper fasteners.

Paper wagons and cars can be made from a paper square folded into sixteen small squares, the sides and ends turned up and pasted, and paper circles pasted on for wheels. Paper seats and canopies can be added. The proportions can be changed by cutting out some of the squares.

Wooden vehicles are most satisfactory, because they can be made to really go, and boats can be sailed, — which is a boat's very reason for existing.

For wagons or cars, a soap box or starch box is very satisfactory. The axles should be securely nailed on, absolutely straight. Material for axles and wheels will depend upon the size of the wagon and degree of efficiency desired. For small, crude vehicles, large wooden button molds, wooden spools (possibly sawed in half) may be utilized for wheels, and toothpicks, kindergarten sticks, or twigs for axles. A small nail or small circle of pasteboard, wax, or plasticine slipped on to the axle, each side of the wheel, will keep the latter in place. For more efficient and finished work, wooden disks of a suitable size and with the hole bored through, and the round sticks of a size to fit them, may be purchased from the carpenter shop or planing mill. Or the holes may be bored with the gimlet and filed out to size. The axles are glued into the disks, then glued, nailed, or screwed to the wagon or car body, and the edges filed or sandpapered so the wheels will turn. Or the disks may be nailed at the end of the axle, using a heavy nail with large head. For nicer work, regular wheels and axles may be purchased at the hardware store

The engine smokestack is made from an empty spool or round box glued on. The cars are coupled together with string, wire, rope, or tiny chains purchased at the hardware store.

The simplest boat is merely a raft with a string tacked on, a spool smokestack, or a sail of paper on a wooden toothpick or skewer, tacked on one end or put into a nail hole. Beyond this is the two or three-decked boat made by fastening small wooden fig boxes or cigar boxes to the four pillars made from slats of a fruit crate, the first deck tacked to a thick block of wood for a keel. This boat will carry real cargoes.

A raft, either doll size or real size, of half-inch board nailed to two parallel joists, can be made by the six-year-old. With the coping saw, a sailboat deck with pointed ends can be made from the whitewood, a block nailed beneath for keel, a sailcloth of muslin hemmed and fastened with cord or small rope to a mast that fits into the hole bored by the gimlet.

Any number of tiny boats may be made of corks, nutshells, eggshells, with sails of paper and cloth, masts and oars of toothpicks, skewers or twigs, seats of paper or pasteboard.

Rafts may be made of sticks, corncobs, or strips of bark bound together with raffia, grasses, or cord. A canoe may be made of birch bark or leather sewed together at the ends, and lined with oiled paper, rubber cloth or oilcloth to make it water-tight. This will carry dolls and cargo.

Furniture. This can be made by the wholesale.

Paper. The easiest way is to use the paper square, folded into sixteen squares, folding and cutting away to get the desired proportions. Paper circles are used for wheels, rockers, mirrors, stove lids; silver paper for mirrors; gilt paper for brass ornaments. Water color gives realistic touches.

Pasteboard. Sheet bristol board may be used, first drawing the design carefully, providing for lapping, folding along the marked lines, and pasting the laps. In this way any desired size can be had. The designs can first be made in paper.

Pasteboard boxes require less work. Spools may be glued to a box cover as legs for a table or chair. Small spools for legs, or pasteboard semicircles fastened on for rockers, transform a box into a cradle. Safety match boxes glued on top of each other, with a paper fastener or button attached as a knob to the sliding sections, make a tiny chiffonier; a pasteboard frame attached to the back has a silver paper mirror or even one of the tiny real glass pocket mirrors. Beds may be made by fastening a pasteboard strip for head and foot board to the ends of a shallow oblong box. A poster bed is made from an oblong box and cover, sticking four skewers at the corners for legs and posts.

Crude wooden furniture can be made from soft blocks of wood fastened together with small wire nails. Chairs are made by nailing a back strip to a block seat; tables by nailing a square or round top to a center block or to blocks at each corner for legs.

Grocery boxes, shoe boxes, cigar boxes, fruit crates, will furnish cheap material of pine wood. This, however, splits easily, has knotholes and splinters, and is a last resort. An assortment of whitewood, one-half inch thick, in one, two, three and four-inch width strips, will be much more satisfactory. Patterns and dimensions should first be made.

Dishes. Nutshells, sea shells, acorn cups, leaves, gourds, chips, corn husks, pea pods, milkweed pods, eggshells, hollowed out apples, potatoes, squashes are the merest suggestion of the natural dishes suitable to a primitive and child life society.

Modeling clay or plasticine are the most satisfactory materials for dishes. Many dishes and utensils can be cut freehand in outline from Manila or silver paper, tin foil, bristol board. Children at nine or ten can work in hammered brass and bent iron.

Games. Ringtoss. Glue a small, straight stick, as a piece of a broom handle, upright to a flat board or disk. Make rings of several sizes from willow or other flexible branches, tied with raffia or cord; or use embroidery hoops, or rims from cheese boxes, hat boxes, small kegs. Any of these may be wound with raffia, strips of colored cloth, or ribbon.

Faba Gaba. Make bean bags of different sizes. Make a frame by nailing four strips together and nailing two strips across this square to divide it into four holes. This may be varied by (a) making the holes of uneven dimensions; (b) making a larger frame and dividing into six or nine even or uneven dimensions; (c) making three or four concentric or contiguous circles.

Grace Hoops. Make hoops as for ringtoss, about twelve inches in diameter. Make sticks about two feet long, half-inch diameter, of straight young branches, old toy brooms, old curtain rods; or buy them at the carpenter shop. Rings and sticks may be wound as in ringtoss.

Colored balls. Crochet covers of colored string or embroidery silk for rubber balls, or sew segments of colored linen or silk together for cover. Select carefully a series of true prismatic colors, — red, orange, yellow, green, blue, violet. Attach a string of the braided cord, silk or fabric. These are washable and more sanitary than the worsted balls.

Toys. Mechanical toys *that children make themselves* are of educational value, as well as interest. In making their own mechanical toys the children learn the significance of many principles in physics, and are able to apply these in a variety of ways. Some children will thus discover principles for themselves.

Toy theaters, with shifting scenery and curtains that can be pulled back or rolled up and down

Toy elevators that will work up and down to carry passengers

Toy pendulum clocks that will tick

Toy derricks that will haul up a load of sand, coal, or bricks, and empty these

Woodchoppers, scissor-grinder men, acrobats, blacksmiths at their anvils, bell ringers, carpenters, laundresses, cooks, housekeepers, all made to work by the manipulation of strings, springs, or cleverly balanced and counterbalanced weights, shot or marble

Toy telephones, electric bells, wireless telegraph systems

Automobiles and engines that will go, the motor power furnished by a spring, windlass, or tiny, homemade electric battery.

CHAPTER XIX

MUSIC AND ART

Rhythm and Musical Sound. Even the tiny baby responds to rhythm and to melody. Rhythm brings "a cadence to the soul", to use G. Stanley Hall's phrase; it relaxes and soothes both mind and body; it has far-reaching significance as a spiritual and moral force. Chanting any rhythmic poem or jingles, singing, rhythmic performing of physical exercises, are the beginnings of music as a rhythmic art. When the noise-enjoying age arrives, at about six months, a string of soft-toned, musical sleigh bells, or later in the first year, at the pounding stage, a tubephone, will give as much enjoyment as harsh noises; and at the same time these are cultivating a rudimentary musical sense. With the development of the phonograph, good music can be had even in households where no one plays a musical instrument. A baby of six months will notice the music, and most children from a year old will show enjoyment in hearing it. It is less important to acquaint little children with well-known classics — which are easily thus worn stale — than it is to provide good types of melody, harmony, and rhythm, — music that is sincere, enduring, normal. If children hear much of such music from the great masters and their disciples, before the age of ten, their tastes may be permanently influenced, and cheap, flashy, sensational music will fail to attract them.

As rapidly as a child develops motor ability to use them, musical instruments of good tone, adapted to his size, will provide him with enjoyable toys that at the same time cultivate sense of good musical sound and opportunity for musical experimenting and self-expression. A stout drum, cymbals, triangle, a tambourine, flute (being careful of its use by only one individual, and that it is wiped before using) are inexpensive. Montessori uses musical glasses and a series of bells tuned to scale and sounded by striking them. Kindergartners make wind harps by stringing mandolin or other cheap strings and wires on a wooden frame made in the workshop. This may be tuned for chords and hung where the wind will play fairy music upon it.

Every little child loves to play upon the piano. The ordinary toy piano is a jangle of noises that can only pervert the child's sense of musical sound. Good toy pianos, with about two scales, small enough for the three-year-old size, can be purchased for a moderate price from some large musical stores. If circumstances will at all permit a child to play at his own sweet will and in his own way upon a real piano, the act will not only yield him indescribable bliss, but will foster immeasurably his love of music, and provide a means of musical self-expression. Few people expect to become great artists on any instrument. Technique, therefore, is of minor importance. The love of music, the desire to find expression through music, is the important feature to cultivate, leaving technique to a later age, nearer the teens.

The hearing of singing as a daily experience of early childhood, is potent for imitation and for good humor. A baby who hears much singing or humming will, even in his first year, attempt to hum, and in his second year, make up little snatches of song. This is music as it should be, developing out of the daily experience of life, illuminating that experience. Froebel urged his teachers to encourage this spontaneous, natural singing, and to set the example by their own spontaneous singing when with the children. In progressive schools of to-day, children of all ages are encouraged to compose melodies for nursery rhymes or little poems that they know, and later to develop harmonies. Thus through creation the child develops a richer self-expression, and if he is interested to become more proficient, he furnishes his own incentive for the drudgery of acquiring technique. What more pathetic situation than that of a child compelled to "practice", whose soul is in revolt, and who every moment is acquiring a deeper loathing for music?

For teaching musical notation, there is a pasteboard keyboard, a set of pasteboard notes of different time-length and a special blackboard with the musical lines on which the notes can be hung. With these many games can be played, even at five or six years of age with some children, although others will not be ready until seven or eight.

The Crude Tastes of Childhood. Little children, like savages, have not developed fine discriminations in color. This is largely a matter of education. The little child shows a preference for vivid color, and no sense of harmony in color. His color sense is as undeveloped as his spoken language, and needs training, especially through good examples, for its refinement. A glass prism hung in the sunlight will give him pure spectrum hues while delighting even his baby days. It is not yet known with certainty at what age children's eyes are sufficiently developed to really perceive color, although they are evidently able to distinguish degrees of brightness before a year of age, and show a preference for red or yellow objects rather than gray. They prefer colored pictures to black and white. Kindergarten supply houses now furnish large colored wooden beads, to be strung on shoe laces, and colored papers in graduated series of hues, and large colored wax crayons the size of a marking pencil. The Montessori apparatus now includes a set of flat wooden bobbins, about two by three inches square, painted in graduated shades of the spectrum colors, which the children at four and five years love to match or arrange by graduations of shade. A box of water colors (primary colors only) is indispensable to childhood.

Art Education. Good pictures, well colored, with sufficient vividness to interest the child, abound in the magazines and the shops. The classic nursery rhymes and tales have been illustrated in color by several eminent artists, and copies may be secured through any kindergarten supply house. The little child prefers pictures of animals, children, and mothers with children, realistic or homelike. He is rarely interested in still life, the classic, or the symbolic.

The ambitious teacher can easily overdo the matter of taking children to an art museum. An occasional trip, between five and nine years of age, will do no harm, if they are permitted to wander at their will. It starts the habit of going to a museum. Of greater potency for æsthetic training is the beauty and harmony of the child's own home, and especially of his own room. Here inexpensive but beautiful colored pictures hung low enough for him to see them easily, and charming little plaster casts, will feed his mind and his soul, as does the daily singing. He is learning that art is for the daily life, not merely for unusual places and occasions as in the museum.

At five or six years of age children may begin to make scrapbooks of beautiful and charming pictures that they find in magazines, or that are purchased through the kindergarten or art stores. Postcard reproductions in color are obtainable of many famous pictures, both classic and nursery subjects.

In art, as in morals, the constructively good will naturally crowd out the crude, the vicious, and the mediocre.

Children's Drawings and Painting. To quote from Doctor G. Stanley Hall:

> Children often like to look at and more or less understand pictures early in the second year. They care most for those that have a story connected with them, and want their pictures read. Children like to draw illustrations of stories and concrete things, which must not be taken away from them in order that they may be precociously taught to see lines only. Instead, therefore, of current methods, the thing for kindergarten and lower grades to draw is the human figure, and vastly more freedom and individuality are needed. Geometrical lines are ghostly and wooden. Things in motion are more interesting, and perhaps Ruskin is right in saying that the child should be limited to the voluntary practice of art. The prevailing methods that begin with mathematical forms, cube, cylinder, etc., are stultifying and not only destroy the natural zest and ability to draw, but take away the power to enjoy art and to understand nature, geography, history, literature, which it is one object of art to inculcate.
>
> The child desires to draw human beings, generally in action. Drawing teachers usually demand complete visual control, but the children draw lines symbolizing the direction birds fly, draw the wind, draw a zigzag line representing the dance a person is engaged in, and even gross errors are repeated after correction and explanation, showing how dominant muscle habits are. Young children draw anything with abandon and pleasure. They do not use their eyes much, no matter how difficult the theme, but draw their own image of it with about as good success as if there were no model. Children care nothing for accuracy here, which is the ideal of the methodists. Their order below ten years of age is the human figure, then animals, plants, or houses, then mechanical inventions, geometrical designs and ornaments. Children's work is essentially pictorial and not decorative. Thus Ricci declares that art as such to children is unknown. Froebel is wrong, therefore, and the child enters the educational field by

the door of literature rather than by that of mathematics.

Always some one or, at most, a few details are focused upon and magnified, betraying just what and how far the child has observed up to date. If we only had a complete collection of all the drawings of a single child with proclivities for art but who had been unrepressed by criticism or derision, we should find its very soul in each developmental stage represented. Too early insistence upon technique crushes. Teachers have so long put form above content that they little suspect the innate power and love of children for this kind of work. Above all, teaching should be to encourage and not to repress the tendency to exaggerate each new trait, and should have regard not to the finished product and should pay little attention to symmetry or to an artistic whole. Uniformity, too, should be cast to the winds and the teacher should encourage the deep instinctive tendency of pupils to perfect each item as it looms into the center of interest.

From several hundred drawings, with the name given them by the child written by the teacher, the chief difference inferred is in concentration. Some make faint, hasty lines, representing all the furniture of a room, or sky and stars, or all the objects they can think of, while others concentrate upon a single object. It is a girl with buttons, a house with a keyhole or steps, a man with a pipe or heels or ring made grotesquely prominent. The development of observation and sense of form is best seen in the pictures of men. The earliest and simplest representation is a round head, two eyes, and legs. Later comes mouth, then nose, then hair, then ears. Arms, like legs, at first, grow directly from the head, rarely from the legs, and are seldom fingerless, though sometimes it is doubtful whether several arms, or fingers, from head and legs without arms, are meant. Of 44 human heads only 9 are in profile. This is one of the many analogies with the rock and cave drawings of primitive man.

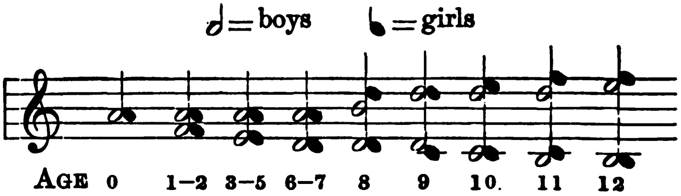
The Sunday Supplement. Fortunate the child who is protected from the encroachment of these execrations. They are like the cheap colored candy in the penny shops,—made to sell to those of undeveloped sensibilities, and further dulling those sensibilities to better life. The ordinary Sunday Supplement page for children is a clever combination of all the crudities that children enjoy—vivid color, crude drawing, bad manners, defiance of authority, clownish humor. Of course children cry for it, as they do for drugs that have dulled their nerves and set up perverted tastes. If it is kept from the child until his teens, and meanwhile his taste is being trained by natural, daily means, the probabilities are that he will then find it offensive; at least he will have passed the age when it can pervert his taste and ideals.

The clownish humor, the crude drawing, the humor of the unusual position and unexpected dilemma, without the bad manners and other unethical conditions, are furnished in abundance in the drawings of Leslie Brooke, Gelett Burgess, Peter Newell, in Tenniel's illustrations of Alice's Adventures, in Edward Lear's Nonsense Books, to mention only a few. Delicately colored pictures, which adults find exquisite, do not attract the child, but in this day there are abundant treasures of pictures and picture books with colors strong, yet not blatant. In this respect the English and American work is in the main preferable to French, German, Russian.

Many books of songs for little children are published that are merely mediocre, or ill-adapted to children because not based on a knowledge of child psychology and the range of the child's voice. Some children can carry a tune at three years, others not until six or seven years. The natural range of the child's voice can be easily tested by trying it out with the piano; it will usually range from E to A at three years and from middle B to upper D at six years. These physiological limitations indicate that songs for children to sing should have a simple melody, within this range, and should be short. Children like simple hymns, lullabies, songs about animals, nature, play, dolls, and action songs.

If a child is thought to have vocal talent, the voice should be especially protected from strain and misuse, and intensive training postponed until late in the teens when the voice has become placed. A teacher of ability should be engaged for the first training.

All children should be trained to use the voice intelligently, which is hygienically. They should be taught to sing softly and naturally, and never allowed to sing harshly, boisterously, or falsetto. Screaming and shouting injure the voice, especially in childhood, while the vocal cords are developing. By a little careful hygiene, the example of musical, well-modulated voices in their elders, and the selection of songs within their range, American children might develop as pleasant voices as are found in some of the countries across the sea.



From Gutzmann and Paulsen.

CHAPTER XX

HOME NURSING AND FIRST AID IN THE NURSERY[1]

General Principles. Careful hygiene will reduce illness to a minimum. Study what to do in emergencies and illness before these appear, in order to be mentally and technically prepared to act promptly, with confidence and poise, when need arises. Teach children as early as possible how to spit, gargle, raise phlegm, inhale. Habits of obedience, self-control, and regularity will assist in recovery. Under any circumstances avoid excitement; keep calm and self-possessed. Use firmness, gentleness, patience, good cheer, and the spirit of play in care of illness. It is wiser to call the doctor at first, when symptoms of illness appear, than to incur severe sickness and greater cost by delay. A severely sick child needs a trained nurse. Children have less resistance than adults, and succumb more easily, therefore they need prompt, intelligent treatment.

Every woman who has the care of a little child should learn the following from the physician or nurse: use of clinical thermometer, bedpan, giving of enema, massage, dressing and bathing of bed patient, bandaging, first aid in serious cuts, fractures, broken limbs, drowning. There should always be at least one room in the house with washable walls, sunny exposure, and without carpets, heavy draperies or upholstered furniture, that can be used for an isolation sick room in emergency.

Symptoms of Illness and Their Immediate Care. When several symptoms are evident at once, the matter is more urgent. It is usually advisable to have the doctor call, rather than to expose the sick child to the change of temperature, dust, excitement of crowds, or danger of infecting others. In severe injury, secure any medical assistance in quickest way.

---

[1] See Preface, page xiii.

Discharge from nose	C(?)[1] 1
Discharge from eyes with inflammation	C(?) 1
Swollen lids, inflamed, yellow discharge	C[2] 3
Sore throat	C 2
Pain in or behind ears	1
Swollen glands in neck	1
Persistent cough	C (?) 1
Persistent lassitude	C (?) 1
Loss of appetite	1
Loss of weight	1
Severe or frequent earache	2
Headache with delirium	3
Stupor or dullness	2
Chills, with or without fever	C (?) 2
Fever with languor, loss of appetite	C (?) 2
Nausea with fever	C (?) 2
Convulsions	3
Eruptions	C (?) 2
Cramps and vomiting may be poisoning	C (?) 3
Persistent pain in feet or legs	1
Swelling of feet and legs	2
Black, or bloody stools	2
Claylike stools	1
Constipation (48 hours, not yielding to home care)	1
Green stools, diarrhea	3
White vaginal discharge	2
Bleeding from mouth or rectum	2
Frequent bleeding from nose	1
Pain at urinating	1
Retention of urine (24 hours)	1
Injuries:	
Fall, especially of young child	3
Blow on head, severe	3
Deep cut, needing stitches	3
Deep burn	3
Excessive bleeding	3
Wound of rusty instrument	2
Bite of animal	2

[1] C(?) = Possibly contagious; isolate.
[2] C = Contagious; child should be isolated.

1. Notify doctor. 2. Call doctor.
3. Get doctor immediately; urgent.

When a child shows even slight symptoms of illness, isolate and keep in bed for a day in a well-ventilated room. This avoids changes of temperature, requires less work of heart and nerves, removes pressure upon spinal nerves, and gives the body better opportunity to combat the lowered vital condition.

Communicable Diseases to which Children are Especially Susceptible

DISEASE	EARLY SYMPTOMS[1]	POSSIBLE COMPLICATIONS	SPECIAL PRECAUTIONS
Bronchitis Incubation: 2 to 3 days. Isolation: Till discharge ceases.	(G)[2] Nasal discharge, slight fever, hard, dry cough, lack of appetite.	Pneumonia.	Fresh air, warmth.
Influenza Incubation: 2 to 3 days. Isolation: Till discharge ceases.	(S)[3] Chill, fever. Discharge from nose, eyes; lassitude, general pains.	Irritated nasal passages; weakened resistance; earache, mastoiditis; bronchitis.	Warmth, fresh air.
Pneumonia Incubation: 5 to 8 days. Isolation: Till discharge ceases.	(S) Severe chill, cold and pain in chest, usually left side; high fever, languor. Respiration quick and painful. Sometimes short, dry, painful cough, vomiting, convulsions.	Increased susceptibility to tuberculosis.	Windows wide open; open fire; avoid weighting chest with poultices or clothing. Avoid gas stove.
Tuberculosis Incubation: 1 to 6 months. Isolation: Not necessary if discharges are burned, dishes disinfected.	(G) Anemia, poor appetite, loss of weight, persistent cough. Sometimes limping.	Stunted growth; bone defects.	

---

[1] Diagnosis of a specific disease in a given case can only be made by an experienced physician. The Table is of value particularly as indicating the mild symptoms with which these begin. Incubation is the period from exposure to first symptoms. Isolation dates from first symptoms.

[2] G. = Onset gradual. [3] S. = Onset sudden.

Communicable Diseases to which Children are Especially Susceptible — *Continued*

DISEASE	EARLY SYMPTOMS	POSSIBLE COMPLICATIONS	SPECIAL PRECAUTIONS
Whooping Cough Incubation: 1 to 14 days. Isolation: 6 weeks. Until 2 weeks after cough has ceased.	(G) Running eyes, nose; headache, weariness; dry cough develops in about two weeks, sometimes without the whoop.	Broncho-pneumonia, hemorrhage, hernia.	Elastic abdominal band. Food after paroxysm if previous feeding not retained.
Diphtheria Incubation: 2 to 10 days. Isolation: 2 weeks. Until culture is negative on two successive days.	(G) Lassitude, headache; usually sore throat, yellow or gray-white patches; sometimes sudden high fever, convulsions, purulent nasal discharge.	Heart, kidneys, ears, broncho-pneumonia.	Recumbent position during fever. Avoid nasal douches. Antitoxin.
Tonsillitis Isolation: 1 week.	(S) Swollen inflamed tonsils. Chills, fever, headache, general pains.	Forms of rheumatism; heart disease, nephritis, St. Vitus' Dance.	Rest in bed.
Chicken pox Incubation: 11 to 21 days. Isolation: Until all scabs are gone.	Eruptions on body. Sometimes fever, nausea, headache.	Kidney disorders; persistent sores from infecting skin.	Cut finger nails short; anoint skin.

Measles Incubation: 7 to 18 days. Isolation: 2 weeks from appearance of rash. Until discharges disappear.	(G) Discharge from nose; eyes reddened, sensitive to light; dry cough. Eruptions first inside cheeks; fine body rash on fourth day. Sometimes chill, fever, hoarseness, malaise.	Weakened eyes; pneumonia, bronchitis, tuberculosis.	Protect eyes with amber glasses, or darken room. Warmth (70°).
Scarlet Fever Incubation: 1 to 8 days. Isolation: 6 weeks. Till all peeling, sore throat, and discharges disappear.	(S) or (G) Fever, nausea, red throat, loss of appetite; eruptions on second day. Sometimes convulsions, diarrhea, white ring around mouth.	Impairment of hearing, sight; kidney or heart weakness.	Prevent infection of ears. Report immediately decrease in urine.
Infantile Paralysis (Polyomyelitis) Incubation: 2 to 7 days. Isolation: 6 weeks.	(G) Stupor, profuse sweating, numbness or paralysis of limbs, difficulty in swallowing. Sometimes convulsions, headache, vomiting.	Paralysis.	
Meningitis Incubation: 2 to 7 days. Isolation: 6 weeks.	(S) Headache, nausea and vomiting; fever, prostration, rapid pulse, unconsciousness in few hours or days. Sometimes convulsions.	Paralysis, deafness, mental defects, pneumonia.	
Mumps Incubation: 10 to 25 days. Isolation: 3 weeks. 1 week after swelling subsides.	(G) Fever, malaise, dizziness, drowsiness, vomiting or diarrhea. Glands near ear swell 1 to 8 days later.	Infection of ear, deafness. Infection of reproductive glands, causing sterility.	
Syphilis (Congenital)	(G) Anemia, malnutrition, chronic nasal discharge and snuffles.	Diseases of bones, nerves, blood; destruction of any organs, paralysis.	

Communicable diseases may be conveyed by discharges, especially from nose and mouth, and in breath; also in vomitus, discharges from eyes and ears, feces, urine, and blood. May be contagious several days before serious symptoms appear in acute cases; and may be carried in throat and mouth many months and conveyed by persons showing no symptoms.

To Prevent Contagion. (1) Avoid exposing the child to any one who has a contagious disease. (2) Do not take young children (under seven, at least) into crowds, busy streets, city dust, or street cars. (3) Household employees, especially child's nurse, cook, kitchen employee, or laundress, should be selected with regard to their health; a thorough health examination for the child's caretaker, unless personally well known or professionally trained, is the only safeguard. (4) No one with a cold, sore throat or other symptoms of contagious disease should be with a young child or prepare its food. (5) Keep special handkerchiefs for each child and never use any one else's for it. (6) Teach scrupulous individual use of cups, spoons, forks, wash cloths, towels, handkerchiefs, whistles, and not to use wash basin for brushing teeth. (7) Avoid pacifiers; wipe toys daily. (8) Clean the child's finger nails daily, and always wash his hands before eating. (9) Attendant should always wash hands before preparing food, giving medicine, caring for eyes, nose, mouth, or wounds; and after care of diapers, toilet, wounds. (10) Milk and water supply should be carefully guarded; unless assured pure, milk must be pasteurized, water boiled. (11) Avoid cats or dogs for young children's pets.

Disease germs can thrive in the mucus, in some tissues, or in the blood. They may enter (1) through the nose, (2) the mouth, (3) a break in the skin. The sick person may convey them (1) from the mouth, by coughing, by a kiss, or on cups, spoons, forks, napkins, towels; (2) in mucus from the nose, in sneezing, or on handkerchiefs; in discharges from eyes or ears; (3) in cases of intestinal infections, from intestinal discharges; (4) venereal disease, from break in skin, from open sore, from suppurating infected eyes; (5) from discharge of boils; (6) scales from skin probably only in smallpox or chicken-pox; (7) on fingers. (8) Germs of contagious diseases are sometimes carried in water, ice, milk, or dust. (9) Cats and dogs easily carry disease germs.

Contagious diseases are always dangerous, causing a large harvest of deaths and leaving lifelong defects in many survivors. It is not necessary that children should have any of them. Children should be carefully protected from exposure to any disease. Good hygiene raises vitality and increases the white blood corpuscles, which are the special protectors against disease germs.

If a child has been exposed to dust or crowds, or if contagious disease is prevalent, give a nasal douche and gargle with normal salt solution, 4 % boric solution, or diluted listerine, before meals and at night. If exposed to disease, also disinfect face, neck, hands, clothes, shampoo the hair with tincture green soap, isolate, notify doctor; repeat after quarantine.

Care of Illnesses Prevalent in Childhood. *Anemia.* Pallor, languor, loss of weight, poor appetite. Give outdoor life, nutritious diet, cold baths, sun baths. Needs medical examination for cause.

Boils. Indicate low resistance. Applying hot fomentations wet in boric solution may prevent coming to head. If at head, apply hot fomentation five minutes; lance with sterilized needle. After removing contents, apply listerine, witch hazel or 25 % alcohol, on sterile gauze; anoint with zinc ointment, and bandage to prevent re-infection. Poultices are unsanitary. Pus is infectious; prevent its touching skin, burn immediately, and sterilize needle.

Chap. Prevent by drying face and hands thoroughly after washing. Apply camphor ice or cold cream before taking outdoors, and at bedtime. Use corn meal or oatmeal in place of soap.

Cold. May be either a congestion or an infection. In any case isolate and treat first symptoms at once; give persistent care to cure quickly. Colds pave the way for more serious infections. Give oil laxative for one or two days. Apply few drops of glycerine, albolene, or liquid vaseline in nose every two hours and at bedtime. Use sterilized medicine dropper; warm oil slightly by heating in dropper over boiling water. For children over one year use nasal oil spray or nasal douche with physician's prescription. Give hot leg bath or hot tub bath, wrapping well to produce slight perspiration; rub with 25 % alcohol solution few hours later, or before rising, to close pores; keep well covered. Keep in bed while fever continues. If in head and eyes, apply cold cloth wet in weak boric or salt solution, over eyes and nose, changing every five minutes, in half-hour periods. Give all the water patient will take, at hourly intervals, or lemonade for children over eighteen months. For dry, parched mouth, rinse with weak salt water, give weak lemonade, or cracker to chew.

If accompanied by chills, keep in warm room, (68°) well ventilated. If without chills, and when fever has subsided, keep outdoors, well protected, but not dressed warm enough to perspire. If in chest, apply counter-irritant (adapted to age) to chest and back. If not recovered in a day or two, notify physician. For repeated colds, discover cause, improve hygiene; increase resistance by cold morning bath, at least to chest and back, and give cod-liver oil.

Colic. Give no food during the attack. Give a teaspoon of water (96° F.) with weak peppermint or soda mint dissolved in one ounce water; repeat every five minutes. Upright position, with patting on back, will relieve gas in stomach. For gas in intestine, massage gently, beginning at lower left side, and working backward along length of colon, always pressing and stroking toward end of colon. If constipated, or attack very severe, give warm enema (110° F.) with soap or normal salt solution. Apply hot fomentations, or hot stupe, made by thoroughly mixing twenty drops of turpentine in one pint water, to abdomen; or hot flannels or hot water bag, to abdomen, buttocks, and thighs. Keep feet warm. Change fomentation or stupe every ten minutes. When relieved, follow with cool hand rub (80°). Constipation in nursing mother will cause colic. Baby subject to colic should have two or three daily movements. Give less at feeding, with longer intervals, slower feeding.

Constipation. Prevent and treat by diet, exercise, and general hygiene. If these fail, have medical examination for possible anatomical defect or obstruction. For acute attack, give mineral oil, increase water, give abdominal exercises at intervals during day, gently knead abdomen, working along line of colon from right to left. The use of enemas and suppositories relaxes the intestinal wall, and induces a chronic condition. Salts, castor oil, cascara, and other drugs overstimulate intestinal secretions, irritate lining, and require continued, increasing use. Calomel may remain in system and cause serious illness; it should never be given to children. If necessary to use any special measures, adapt laxative from list (page 362). For chronic cases in older children, apply cold compress around abdomen at night until condition is improved.

Convulsions. Give leg or tub bath at 98° F. for ten minutes; mustard may be added. Be very careful that water is not too hot. Child may be put in with clothing on. Put cold cloth around neck and on head.

Give prompt laxative and an emetic. Keep child in bed till recovered from shock.

Cramp in Intestines. Treat as colic.

Croup. Apply hot fomentation to chest for ten minutes, followed by cold compress. Give salt water emetic to cause vomiting and remove phlegm, if breathing is still difficult. If necessary, in severe case, give half teaspoon of syrup of ipecac to produce vomiting; apply counter-irritant to chest and back. Keep child well wrapped. If severe, prepare kettle of boiling water so child can inhale steam. Add two tablespoonfuls of compound tincture of benzoin, creosote or oil eucalyptus, or teaspoon of vinegar or ammonia. Use light blanket to cover kettle and head of child. See that kettle is not near enough to burn face. Be careful that child does not choke, and that clothing is not dampened. Wrap a piece of rubber sheeting or woolen blanket about shoulders, and remove when through steaming. For mild cases, or when child is relieved, place saucer with tincture of benzoin near child's head, where fumes will be inhaled. Treat as for cold, on following day, with counter-irritants, and use menthol, oil nasal spray, or tincture of benzoin for inhaling. For children subject to repeated attacks, provide a special croup kettle.

Cough. Ascertain cause from physician and treat by his prescription. Avoid cough syrups, which are dangerous for children. Plain honey, figs, fig juice, are soothing. Use menthol inhaler. Apply salve of menthol and vaseline in nose at night, and a cold compress or mild counter-irritant on throat.

Diarrhea. Stop regular food. Give infants barley water, older children only special dietary. Give prompt laxative. Keep in bed. Call doctor promptly and save stools for his inspection.

Earache. Symptoms in infant include crying, and turning head from side to side. Apply counter-irritant behind and below ears. Place few drops of lukewarm phenol and olive oil mixture in ear, on sterilized cotton. Apply hot flannel, hot-water bag, or other dry heat.

Eczema. Apply salve or lotion, according to doctor's direction. Avoid water or vaseline on affected places, as these are irritating. Keep clean with olive oil or cold cream. Give dietary treatment.

Eyes Inflamed. Bathe hourly with 2% boric solution or weak salt water. For cold in eyes, also apply vaseline at night and in morning to lids, avoiding eyes.

Headache. Frequently due to constipation, indigestion, eye-strain, excitement, fatigue, overheating. Ascertain and treat cause. Apply cold cloths, changing every five minutes, or hot cloths, changing every ten minutes, or alternate hot and cold, according to wishes of patient, to forehead and back of neck. Apply menthol pencil to forehead and base of brain. Massage back of neck, with strong pressure downward and toward sides. Inhale menthol, mild camphor, ammonia, or smelling salts.

Hiccough. Due to indigestion or overeating. Hold breath. Sip water slowly while holding breath. Give small lump of sugar. If severe and continued, induce sneezing or give emetic to remove cause.

Nausea. Give soda mint tablet in glass of hot water. If not relieved, give emetic. After vomiting, give glass of hot or cold water hourly, mildly salted or with soda mint, for several hours.

Poisoning. Keep poisons out of children's reach. Nick cork of bottles containing poison, and tie red ribbon around neck. Keep list of common poisons and antidotes posted on door of medicine cabinet for ready reference.

Prickly Heat. Due to overheating from too much clothing or from weather. Reduce quantity of clothing. Avoid wool next the skin. Bathe several times a day with water 70°–80° F., adding one teaspoon baking soda to a quart of water. Powder affected places lightly with starch or baby powder (page 47).

Rheumatism. Found in all its forms in childhood. If chronic, may permanently injure heart. Give mild laxative. Keep in bed. Apply dry heat as directed to affected parts. Rub with alcohol (25% solution), witch hazel, or arnica. Improve diet, reducing purins and increasing alkali-forming foods. Electric treatments may be beneficial.

Sunburn. Prevent by use of canopy, sunshade, or hat, and by applying cold cream before taking out in sun or wind. To treat, apply cloths wet in sweet cream, cold cream, almond lotion. Avoid use of water on affected parts.

Fever. Keep in bed. Fever is not a disease but a symptom of poison in system. Reduce temperature gradually. Give cool sponge (75°–80° F.) with plain water, weak salt solution, or 25% alcohol solution, for ten or fifteen minutes every hour. Keep cool collar of wet cloth around neck, or on head, changing every five minutes. In severe cases, also keep icebag at head, hot-water bag at feet. Give abundance of cold water, cold fruit juice with little or no sugar, or small quantity of ice cream. Keep room cool (60°–65° F.). There is no danger of patient taking cold while temperature is high, but special precautions must be taken, as fever diminishes, to prevent chilling.

Sore Throat. Dissolve chlorate of potash tablet in half pint of water, and give spoonful every half hour, holding in mouth as long as possible. Gargle and rinse mouth with normal salt solution, boric acid, or listerine, without swallowing. For mild cases, apply cold compress to throat. For severe attack, use counter-irritant.

Stomach. Sour stomach or heartburn. Use soda mint tablet or saltspoon of baking soda in glass of hot water. For stomach-ache give same treatment, and massage by deep breathing and voluntary pulling in and pushing out abdominal wall by muscular effort; use mild trunk-bending and twisting exercises. If constipated, give prompt laxative.

Toothache. Apply listerine or oil of cloves or wintergreen on cotton to the cavity, and dry heat or counterirritant outside, until dentist can be seen.

Worms. Indicated by disturbed sleep, grating teeth in sleep, picking at nose, poor or ravenous appetite, irritation at rectum. May sometimes be visible as fine white threads in stools. Can be accurately diagnosed only by microscopic examination. Avoid giving medicine except on doctor's prescription. Reduce candy and meat in diet.

Injuries. Practice first aid until prepared to act promptly in any ordinary emergency. Call physician in all but mildest cases, to ascertain extent of injury, overcome shock, and prevent poisoning. Disinfect hands before treating any wounds.

Bruise, Bump, or Sprain. Apply very cold or very hot water, changing at proper intervals. Continue until swelling is reduced.

Burns. Never use flour or cotton on burns. Exclude air and prevent infection from dirt or water. Burns are easily infected or cause shock. For burns by dry heat, apply vaseline, baking soda, carron oil, or olive oil, and wrap in sterilized gauze to exclude air. For scalds, apply wet cloths of cool water (sterilized if possible), with baking soda or boric acid. Exclude air and be careful not to break blister. Treat blisters as burns.

If clothing is afire, smother by rolling on floor or wrapping in heavy coverings. Prevent fumes and smoke from entering lungs. If clothing is burned to skin, cut around it and soak off with olive oil. For fire in room, close windows and doors, and attempt to smother before using water. To go through smoke, put wet cloth over mouth and nose.

Cuts and Scratches. Hold under running cool water to thoroughly rinse out dirt. Wash with disinfectant. Take special care with wounds from rusty instruments. Scratches may then be painted with collodion, cuts covered with court plaster (do not moisten in mouth) or surgeon's plaster.

Fall or Shock. Lay flat. Apply cold water to head, hot-water bag at heart and to feet. Cover warmly. Rub arms and legs toward heart, without uncovering. Apply mild smelling salts, ammonia, or camphor at nose. Never give alcohol without doctor's order. Hot milk, tea, or coffee are safe stimulants.

Foreign Body in Ear. Do not attempt to remove by poking. Put in few drops of sweet oil, lay head down on that side, till doctor comes.

Foreign Body in Nose. Do not attempt to remove by poking. Let child blow nose, closing opposite nostril. Call doctor.

Foreign Body in Throat. If not easily removed with finger, hold child by ankles, head downward, and slap on back. If swallowed, give soft bread at once but do not give laxative. Remove fishbone with fingers.

Foreign Body in Eye. Do not rub. Encourage crying. Blow nose. If visible, remove with corner of clean handkerchief. If not visible, pull upper lid over lower, and move gently. Wash eyes with boric or salt solution. For injury, apply cold cloths wet in boric or salt solution.

Slivers. Remove with a sterilized needle, wash with antiseptic and bandage with zinc ointment or paint with collodion. Never use a pin. If very difficult to remove, apply hot fomentations.

Use of Water, Heat, and Light. Heat, cold, water and light are effective because of their action upon the distribution of circulation, rate of metabolism, the local and reflex nerves, the heart action, the chemical condition of the blood. Their therapeutic use has only in recent years become a science. Extensive study and experience is necessary for their efficient application. A few fundamental principles will guide in their ordinary use, but only a physician trained in hydrotherapy and thermotherapy can give directions meeting every factor in an individual case.

Applications affect not only the local part but also the parts with which it is reflexly connected. The volume of blood can be withdrawn from any part or to any part. The first effect of hot applications is stimulating; continued for more than ten or fifteen minutes (after the surface is reddened) is depressing. Cold is first depressing; continued slightly is stimulating, and long continued becomes depressing. Alternate heat and cold for three to ten minutes is the most stimulating.

Pain, inflammation or increased secretion in any part usually indicates local congestion of blood which needs to be withdrawn. Congestion in the head, indicated by headache or cold; or in the chest, indicated by chest cold; or in the abdomen or pelvic organs, can be reduced either by a general distribution of blood to the surface or by withdrawing the supply to the legs and feet. A hot bath or pack draws the supply to the surface; a hot leg bath or pack draws it to these extremities. The cool sponge following the hot water keeps the blood in these parts, besides reducing the temperature of the superheated surface and toning up the skin. Hot fomentations draw the circulation to the surface, away from the congested internal parts directly beneath or reflexly connected. Thus, heat applied to the forehead and base of brain reduces head congestion; or as fever is usually present, cold (50° F.) will have the same effect and at the same time reduce the temperature, while a hot-water bag at the feet will maintain the temperature if the fever is mild or absent. Congestion in the abdomen or pelvic organs is relieved by local applications of heat to these parts and to their reflex areas — the buttocks, thighs, feet and hands.

In using heat or cold, the application must be changed whenever its temperature approaches that of the body. Local hot applications may be continued until the surface is reddened — from five to twenty minutes. The surface is then sponged quickly with water, or 25 % alcohol, at 70°–80° F., to prevent superheating of tissues. Cold general sponging in fever may be continued ten or fifteen minutes, one part sponged and dried at a time, patient covered with a light blanket; and repeated every hour. Local cold, as icebags or cold cloths, may be continued half an hour, and repeated at half hourly intervals. A cold compress is a mild counter-irritant. Water reaches tissues below the surface, and for deep-seated disorders is therefore more effective than dry applications, when practicable. Care must be taken to protect hair, clothing and bedding from dampness, by use of rubber cloth or oiled silk. For young children, temperatures must be less severe and changes more gradual than with adults. The nurse should test the heat of applications by applying to her own face.

Hot Tub Bath. For chills, convulsions, incipient cold, general depression without fever. If patient is constipated or had no movement in preceding twelve hours, precede by enema, as hot water increases absorption from intestinal tract. Give in warm room (70° F.), at 100° F., or higher for children over four years. One tablespoon mustard (in cheesecloth bag) per gallon of water increases effect. Wrap cold cloth around neck, and protect hair. Continue five to ten minutes, until skin is red, adding hot water carefully to slightly raise temperature. Give quick hand rub with water at

80° F. unless sweating is desired. Dry quickly, wrap and cover warmly. Giving water to drink will increase perspiration. After perspiring, rub with 25 % alcohol.

Hot Leg Bath. For intestinal pain, headache, incipient cold, cold feet, convulsions. Conditions and temperatures as for tub bath. Keep patient well covered. Can be given with patient lying in bed, water in bucket on chair at side of bed. Rinse with lukewarm water, put on stockings, and keep hot-water bag at feet.

Hot Fomentations. To relieve local pain and congestion. Apply one or two thicknesses of flannel to place; lay on this a double flannel wrung out of boiling water, and cover with dry flannel and waterproof. Be careful that it is not too hot at first. In changing, prevent air striking part. Change every three minutes, and continue twelve minutes. Sponge quickly with water 70°–80° F.

Warm Tub Bath (90°–93° F.). For nervousness and irritability. May continue, maintaining temperature, for half an hour.

Dry Heat. For chills, neuralgia, rheumatic pain, earache. Use thermophore, hot-water bottle, hot flannel, salt, bran, hops, soapstone, flatiron wrapped in flannel, or Japanese handstove. In using hot-water bag, be careful it is not too hot; wrap in flannel, and watch for leakage. Water should be below boiling or rubber will be damaged. Press out air before putting in stopper. Remove when cool. If electric pad is used, turn off current when hot. Continue dry heat for half hour periods; sponge quickly with water 80° F.; repeat at half hour intervals if necessary.

Light. Light rays penetrate about two inches below the surface, and therefore continue the therapeutic effects of heat to the deeper tissues. Systematic sun baths may be given. Carbon electric light gives the same effect; it cannot be used to advantage, however, with children under four or five years. For pain in chest, sore throat, abdominal pain, may be used instead of hot water or dry heat. Concentrate the light and protect the skin from contact with bulb by a cone made of white paper. For earache, use the smallest size bulb. Apply for fifteen or twenty minutes, until redness is induced, then give quick cool sponge. May be repeated several times during day.

Cold Bath, Tub or Sponge. For fever. Cool as patient can react from, beginning at 85° and working lower. Give several times during day, continuing ten to fifteen minutes. Add 25 % alcohol for severe cases.

Cold Compress. Useful as counter-irritant and stimulant in sore throat, cough, croup, cold in chest, constipation. Wring cloth out of cold water (50°); wrap on part; cover with flannel and with oiled silk or rubber sheeting. Leave on overnight. For greater effect, may be preceded by hot fomentation. For throat, apply from ear to ear, bring up behind ears and hold in place by tapes over head.

Cold Cloths for Local Congestion in Head or Back. Apply to temples, throat, base of brain, and to spine. Change every ten minutes, or sooner if warm. For severe congestion and pain, alternate hot and cold cloths, changing as soon as warm.

Feeding in Illness. The food is a great factor in recovery from illness, and should be regulated with much care. Do not urge eating. Sick animals refrain from eating, or seek grass or special herbs. Less food is needed when patient is in bed, except in wasting diseases. In any illness give simple, easily digested food, requiring minimum of chewing, providing much nourishment with minimum of effort for patient. In disease, provide anti-toxic diet, highly alkaline, with little or no purins, laxative (except in intestinal disorders), dainty, small servings, served hot, with variety from day to day. Note all symptoms and fit dietary to all conditions present. It is an error to stuff a cold, but rather it should be starved. Beef tea and meat broths contain very little nourishment, but harmful extractives; their stimulation is in part from extractives, in part from the salt and heat. Hot milk, toast-water with butter, clear vegetable broths, provide the stimulation, with a higher percentage of nourishment and minerals, and with none of the disadvantages of meat broths.

Colds. Reduce food almost entirely for one or two days. Follow general diet for illness, or as for constipation.

Constipation. (See page 171.) Increase oils, fruits, and fruit juice, especially on rising and at bedtime. Oatmeal is laxative to some children, constipating to others. Figs, prunes, and seedless dates may be cooked together or made into a paste. Pecan nuts, ground for children under five, may be used for sandwiches or with fig paste. Use olive oil and lemon juice for salad. Serve eggs raw. Avoid foods prescribed for diarrhea.

Diarrhea. Flour browned in oven lightly, then made into gruel, cooking twenty minutes; season with salt. Milk boiled, bread toasted; cornstarch pudding, blackberry juice, gelatine, buttermilk made with yogurt tablets; especially avoid purins, cellulose, raw milk, raw eggs, as well as laxative foods.

Fever. Moot question whether diet should be limited or increased. Reduce proteins, omit purins; provide salads, highly alkaline foods, as celery, spinach, baked potato, cantaloupe; allow gelatine, fruit juices, strained vegetable purées, pure ice cream, sherbets, yogurt buttermilk, whey, toast-water.

Sore Throat. Infection or from operation. Soft, soothing, healing food. Gelatine, honey, dipped or milk toast, fig paste, date butter, jellies, raw beaten egg, egg and milk, blanc mange, pure ice cream. Avoid hard, strongly acid foods, or those requiring any chewing.

Wasting Diseases. Increase diet to patient's capacity, especially milk, eggs, spinach, salads, fruits, butter, olive oil.

The Sick Room. Furnishing, care, and cleaning should be as for nursery. For a contagious disease, disinfect room before and after patient uses. Attendant should wear cotton dress. Street clothes should not be allowed in sick room. Discretion should be used regarding visitors; no one should enter in case of contagion. Use separate bed linen and clothing for night and day. Turn pillows frequently and change position of patient. Use ring of cotton cloth to lift head and prevent bedsores. Reduce room temperature by hanging up wet sheets. Open dishes of chloride of lime will absorb dampness. Charcoal, occasionally changed, will absorb odors. Keep all medicines, glasses, and food covered, room orderly and well ventilated. In contagious diseases, attendant should disinfect hands, gargle and rinse mouth with antiseptic before eating; and before leaving the room, wash face and hands with weak bichloride solution and remove dress, cap, and shoes; a cap should cover the hair.

Bathing and Dressing. The sick child should usually have a bath twice a day, temperature and method depending upon his condition. This removal of waste will add to his comfort and hasten recovery. A sponge bath is less fatiguing than the tub. A salt bath (one third cup per gallon of water) is a tonic. It should not be used if the skin is irritated. Bran, starch, or soda baths relieve chafing, inflamed skin, prickly heat, irritation in eruptive diseases. To one gallon water use half a cup of clean bran, tied in cheesecloth and previously soaked; or a cup of ordinary raw laundry starch, or a tablespoon of baking soda. Alcohol bath, using one fourth alcohol, is cooling and hardening. Pure alcohol reduces heat too rapidly. Oil rub with cocoa butter, or olive oil may be used for cleansing in cold weather, for emaciation, or after bath in eruptive diseases.

Rinse mouth and clean teeth after each feeding, using boric solution, weak soda water, mild listerine or 1 % menthol solution. Disinfect brush in 70 % alcohol after using. In contagious diseases, or great weakness, use a mouth swab, and clean teeth with antispetic gauze on toothpick, instead of with brush.

Maternal Nursing and Hygiene. *Constipation.* Purgatives are never to be used, and enemas employed only as a last resort. If diet and exercise fail, cascara sagrada or compound licorice powder may be used.

Heartburn. (Acidity of the stomach.) Sometimes develops. It may be prevented by avoiding nervousness, by taking less fat at meals, and drinking a glass of rich milk half an hour before mealtime; if it develops after a meal, a soda mint tablet or a quarter of a teaspoonful of soda bicarbonate will relieve it. The nausea sometimes present in the first four months is probably due to auto-intoxication from lack of elimination of toxins. Preventive measures include careful attention to diet, daily baths, and exercise. If it occurs, a cup of hot water slightly salted, or a piece of dry, hard toast taken before rising, will usually overcome it. Peppermint, acid from grape fruit, salty food, whole cloves held in the mouth, or a cold cloth laid over the abdomen, are relief measures. It is rarely present in the last four months.

Varicose Veins. May be prevented by avoiding fatigue, long standing, and by lying down several times a day, especially after meals, for a quarter hour, with feet elevated higher than hips. Tight bandaging or elastic stockings must be used, if veins become varicose; in severe cases, rest in bed is necessary.

Hemorrhoids. May be prevented by avoiding constipation, heavy exercise, overfatigue, and by lying down a few minutes after a movement. May be corrected by local applications, either of cold or hot cloths.

Pruritus. Local applications of lukewarm bran water several times a day, followed by dusting powder made by combining one teaspoon salicylic acid with one cup cornstarch, will relieve itching.

Hemorrhage. Patient should be put to bed, hips and legs elevated, with local applications of cold cloths or styptic cotton. Doctor should be called immediately.

Urine. Decrease in quantity (less than one quart a day), high color, odor, or sediment, should be reported at once to physician.

Abdomen. After fourth month anoint daily with cocoa butter or vaseline to give elasticity to skin.

Breasts. During last two months wash morning and evening with soap and warm water, drying thoroughly. Anoint at night with cocoa butter, gently draw out nipple. In the morning apply 25 % alcohol.

Teeth. Rinse mouth after each meal and at bedtime with milk of magnesia or weak sodium bicarbonate solution, to neutralize acids.

Childbirth. Primitive women have only slight discomfort, because of natural outdoor living and unrestricting clothing. Minimum of pain requires well-developed pelvis, normal position of organs, strong abdominal muscles, previous good hygiene, moderate-sized baby, with normal presentation. Narrow, ill-shaped pelvis may be caused by rickets, tight binders or diapers in infancy, or to indoor life, long sitting, and tight clothing in girlhood, especially from twelve to sixteen years. Abnormal position of organs or of infant may be caused by tight clothing, heavy clothing supported from the waist, incorrect posture, long hours of standing during girlhood or womanhood. Weak abdominal muscles are due to corsets and lack of exercise. Hygiene includes regularity and rest at periods, freedom from excitation of the pelvic organs during pregnancy and lactation, an interval of two or three years between births, and a condition of reserve vitality at the beginning of maternity. An overweight baby is produced by overfeeding and lack of exercise during pregnancy. Abnormal presentation may be corrected by skilful medical care during pregnancy. Osteopathic treatment during pregnancy, by a skilful practitioner, may improve muscle tone.

The physician should be selected with special care, either a specialist or a general practitioner with an extensive successful obstetrical practice; and the nurse likewise. The physician should be consulted and the urine examined once a month until the last two months, then fortnightly. This is necessary to prevent toxemias, correct any abnormal position, and prepare for any possible complications. Absolute surgical cleanliness by physician and attendants is of the greatest importance at birth and during confinement. Silver nitrate solution for the baby's eyes should not be neglected. If there are no probabilities of complications, if the local physician is competent and can be readily reached, and if the home can provide sterile conditions, strong artificial light and quiet, the home is preferable for confinement; otherwise the hospital is better. Midwives, unless from accredited foreign training schools, with local licenses, and of scrupulous cleanliness, are a dangerous investment; a competent physician is preferable. With prenatal medical care, an experienced physician, *and aseptic care* during confinement, it is a very safe experience. Thoroughly satisfactory anesthetics have not yet been discovered. With attention to hygiene from infancy, natural means will minimize pain.

Diet should be light during the first few days. Overfeeding may cause constipation and poor milk. Rest in bed for two weeks, and quiet life, with only light exercise, and chiefly out-of-doors, for the succeeding month, is necessary for complete recovery of the pelvic organs. A few weeks' care and quiet at this time, even though the mother feels strong, may prevent months or years of invalidism. The physician should make examinations of both mother and baby four weeks and six weeks after birth.

Nursing. The baby should be put to the breast six to twelve hours after birth, when the mother has rested, and every six hours for two days; thereafter, according to schedule. This should be persisted in for ten days, at least, the milk sometimes not coming for a week. This is as important for the recovery of the pelvic organs of the mother as for the nourishment of the baby. The baby should be given water between the feedings, but no food, unless on the doctor's order.

If the baby is unable to take the breast, through weakness or some malformation of the mouth, the milk should be drawn out with disinfected fingers or breast pump into a sterilized glass, and fed through a sterilized medicine dropper, or after two months, with a spoon.

If the nipples become sore or cracked, a glass breast shield with rubber nipple should be used. This is to be boiled for five minutes after using, and kept in saturated boric solution until needed. If the breasts are heavy, congested, or tender, a knitted breast binder should be worn, the breasts massaged from base toward the center for ten minutes between nursings. If they become caked, hot fomentations should also be applied for fifteen minutes before massaging or nursing.

Administering Medicine. Use as little medicine as possible. When prescribed, give exactly according to directions. Wipe mouth of bottle and examine label carefully, before and after pouring. Use clean spoon and disinfect after using. Remove cork with fingers, not with teeth. Avoid getting irritating substances into eyes or on tender, broken skin. Make a game of administering medicine and keep the child amiable, if possible. When necessary, hold nose, and put spoon back on base of tongue, to administer.

The Nursery Apothecary Chest. A few essentials should be kept at hand in a cabinet, protected from dust.

2-ounce bottle each:
- liquid vaseline
- liquid albolene
- glycerine
- carron oil
- turpentine
- camphor
- oil eucalyptus
- oil wintergreen
- castor oil
- tincture green soap
- carbolic 5%
- listerine

1-ounce bottle each:
- peppermint
- olive oil with 3% phenol
- syrup ipecac
- soda mint tablets
- chlorate potash tablets
- collodion

Tube or box:
- zinc ointment
- anagelsic balm
- vaseline
- cocoa butter

½-pound each:
- mustard
- sodium bicarbonate
- boracic acid

½-pint bottle each:
- grain alcohol
- olive oil
- compound tincture benzoin
- witch hazel

- milk of magnesia
- mineral oil

Apparatus:

medicine dropper, sterilized, kept in sterilized jar
clinical thermometer
menthol inhaler
nasal spray; nasal douche
thermophore or hot-water bag
bulb syringe
court plaster; surgeon's plaster, small size; antiseptic gauze, small size
antiseptic cotton; styptic cotton
sterilized bandages; 18-inch flannel squares; oiled silk, paper napkins
safety pins, needles, tooth picks, handbrush, scissors

In case of infectious disease, lysol, creolin, or *fresh* chloride of lime will be needed.

Emetics. Mild: lukewarm water with teaspoon salt. *Stronger:* tablespoon salt or teaspoon mustard in glass lukewarm water. *Severe:* 10 to 20 drops syrup ipecac (fresh).

Laxatives. Mild: mineral oil, milk of magnesia, olive oil; one teaspoon for babies, tablespoon at six years. For emergency, castor oil, preferably in capsule, or between layers of orange or grape juice. For immediate action, citrate of magnesia. For older children or adults, compound licorice powder may be used. Laxative oils should be given between meals; nutritive oils shortly after meals.

Antiseptics. These hinder development of germs. For internal use and on eyes, normal salt solution (1 teaspoon salt to 1 pint water), 2 % boric solution (1 teaspoon to quart water), listerine 50 %. For external use, saturated boric solution (1 teaspoon to pint water) listerine, 70 % alcohol, witch hazel. Peroxide is uncertain. Use tincture of green soap in warm water for washing infected tissues. Use boiled or distilled water in making solutions. Put in sterilized bottles.

Disinfecting. Hands: scrub with hot water and tincture of green soap or lysol, clean and trim finger nails; for surgical cleanliness, scrub through several waters, soak one minute in 70 % alcohol, and dry on sterilized towel. Linen from infectious patient: soak in solution of ½ ounce creolin to two gallons water for twelve hours before removing to laundry; boil at once. Dishes from infectious patient: burn food; put into covered kettle with soap powder; immediately boil twenty minutes; or keep in patient's room; or use papier-maché and burn. Excreta from infectious patient (urine, stools, vomitus): put with equal volume of a solution made of equal parts saturated solution of chloride of lime and 2 % solution acetic acid or vinegar; let stand quarter hour before disposing. Use tissue napkins, squares of cheesecloth or old linen for nose and mouth discharges. Put these and soiled dressings into paper bag and burn at once. Room: formaldehyde gas. Hot water and soap suds, strong sunlight, and fresh air are disinfectants.

Sterilizing. Needle: dip in 70 % alcohol, or hold in match flame until red. Water: boil twenty minutes. Dishes: boil twenty minutes; keep in water with vessel covered, or in boric solution, until needed. Gauze, bandages: boil twenty minutes in saturated boric solution or 2 % carbolic. Let cool slightly in water, wring out with disinfected hands or in sterilized towel. Or suspend in cheesecloth hammock tied to handles of wash boiler. Cover tightly and steam, with water boiling, thirty minutes. Press in sterile towel with hot iron, leave wrapped, and keep in covered receptacle until needed. Small squares for nursery use: cut and tack in bundles of five before sterilizing, store in a sterile, covered jar, and remove only as needed.

Counter-irritants. These draw the circulation to the surface, relieving internal congestion; they have not the chemical or metabolic effect of water and light. Mild: anagelsic balm, mentholated vaseline, cold compress. Mustard plaster is more severe. Mix one part mustard and two parts flour, then bind together with white of egg or *lukewarm* water. Rub lard or vaseline into skin before applying. Leave on five to ten minutes. If necessary, repeat in six hours, using four parts flour. Kerosene, capsicum vaseline, red pepper, are too severe for children. Dry mustard may be rubbed behind ears for earache. Blistering has no value.

Patent medicines are expensive and dangerous. Avoid them, especially soothing syrups, cough or worm medicines, cold or headache cures, tonics. Many of these contain forms of opium or of coal tar products that affect the heart, and high per cent. of alcohol, and are positively dangerous. Hygienic measures are safe and more certain.

Choose a physician who favors hygienic treatment, and who knows how to use physiological measures — diet, hydrotherapy, massage, open-air treatment — with a minimum of drugs.

VALUE OF 100-CALORIE PORTIONS OF COMMON FOODS

EDIBLE PORTION, UNCOOKED

FOOD MATERIAL	WEIGHT[1]		COMMON MEASURES[2]	PROT.[3]	FAT[3]	CBHY.[3]	LIME[1]	PHOS.[1]	IRON[1]
	Oz.	*Gr.*		*Calories*	*Calories*	*Calories*	*Grams*	*Grams*	*Grams*
Almonds	.54	15.5	8–12	13	77	10	.046	.132	.0003
Apples	5.61	159.	1 large	3	7	90	.022	.05	.0005
Apricots (dried)	1.27	36.	4 large	7	3	90	.031	.1	
Bacon	.56	16.	2 thin slices	7	93	0	.001	.04	.0002
Bananas	3.58	101.4	1 large	5	5	90	.01	.055	.0006
Barley flour	1.	28.	2 T.[5]	10	3	87		.083	.00028
Beans (dried), Lima	1.01	28.6	1⅓ T.	21	4	75	.028	.219	.00195
Beans, string	8.5	241.	1 qt.	15	48	37	.177	.284	.0038
Beef, round, lean	2.26	64.	⅓ × 2 × 2 in.	55	45	0	.01	.313	.002
Beets	7.66	217.1	2 med.	2	23	75	.06	.19	.0013
Bread, white	1.38	39.0	1 thick slice	13	6	81	.011	.075	.0003
Bread, whole wheat	1.44	40.7	1 thick slice	15	5	80	.016	.16	.0006
Butter	.46	13.	1 T. scant	.5	99.5	0	.003	.004	
Chicken	3.27	92.6	⅓ × 3 × 3 in.	90	10	0	.007	.25	
Carrots	7.80	221.2	2 med.	10	8	82	.168	.22	.0016
Celery	19.07	540.6	2 heads	24	5	71	.54	.54	.0027
Cheese, American	.8	22.8	1⅓ cub. in.	25	73	2	.25	.329	
Cheese, cottage	3.21	91.1	3⅓ T.	76	8	16	.3	.4	
Chestnuts	1.46	41.3	9	10	20	70	.017	.08	.0004
Cocoa	.71	20.1	3 T.	17	52	31	.027	.22	.0005
Corn, green	3.49	99.	3 T.	13	10	77	.008	.21	.00075
Crackers, soda	.85	24.2	2½	9	20	71	.006	.054	.00035
Crackers, wheatsworth	.81	23.	3	15	20	65	.016	.243	.0014
Crackers, oatmeal	.81	23.	2	11	24	65	.03	.216	.0009
Crackers, graham	.82	23.	2	9	20	71	.016	.243	.0014
Corn meal, granular	.99	28.1	3 T.	10	5	85	.004	.08	.0003

VALUE OF 100–CALORIE PORTIONS OF COMMON FOODS (*Continued*)

EDIBLE PORTION, UNCOOKED

FOOD MATERIAL	WEIGHT		COMMON MEASURES	PROT.	FAT	CBHY.	LIME	PHOS.	IRON
	Oz.	*Gr.*		*Calories*	*Calories*	*Calories*	*Grams*	*Grams*	*Grams*
Corn meal, unbolted[5]	.92		3 T.	9					
Cream, 20 per cent	1.49	40.	2 T.	5	86	9	.07	.10	.0001
Dates	1.02	28.8	4–6	2	7	91	.03	.03	.001
Eggs	2.38	67.5	1½	32	68	0	.06	.24	.0019
Egg white	6.92	196.1	7–8	100	0	0	.028	.05	.0002
Egg yolk	.97	27.6	2	17	83	0	.05	.27	.0023
Figs	1.12	31.6	1 large	5	0	95	.089	.099	.0011
Fish, cod (salt)	3.1	88.	1 c.[6] not packed	97	3	0	.036	.601	.001
Fish, haddock (fresh)	4.94	139.9	1 slice 1 × 2 × 3 in.	96	4	0	.04	.5	
Fish, halibut (fresh)	2.93	82.5	1 slice ⅓ × 2 × 3 in.	61	39	0	.01	.3	.0002
Grape juice	3.53	100.	7 T.	0	0	100	.021	.04	
Honey	1.03	30.6	4 t.[7]	1	0	99	.001	.01	.0003
Lady finger	.96	27.	1	10	12	78	.01	.05	.0003
Lentils	1.01	28.7	2 T.	21	7	72	.03	.18	.0024
Lettuce	18.47	523.6	1 large head	25	14	61	.26	.47	.005
Macaroni	.99	28.	16 sticks	15	0	85			
Maple syrup	1.2	35.	4 t.	0	0	100	.06	.02	.0009
Milk, whole	5.1	144.5	⅔ c.	19	52	29	.239	.303	.00034
Milk, skimmed	9.61	272.5	1⅛ c.	37	7	56	.478	.606	.00068
Molasses	1.23	34.9	1⅓ T.	.5	0	95.5	.3	.1	
Molasses cookie	.95	27.	1	6	23	71	.01	.05	.0003
Oatmeal	.88	25.1	4 T.	18	7	75	.03	.216	.0009
Olives (ripe)	1.3	38.	7	2	91	7	.06	.01	.0009
Onions	7.24	205.4	2⅓ large	13	5	82	.12	.24	.0011

VALUE OF 100–CALORIE PORTIONS OF COMMON FOODS (*Continued*)

EDIBLE PORTION, UNCOOKED

FOOD MATERIAL	WEIGHT		COMMON MEASURES	PROT.	FAT	CBHY.	LIME	PHOS.	IRON
	Oz.	*Gr.*		*Calories*	*Calories*	*Calories*	*Grams*	*Grams*	*Grams*
Orange juice	8.17	231.5	1 large	0	0	100	.12	.07	
Peaches (fresh)	8.53	242.1	2 large	7	2	91	.02	.113	.0007
Peanuts	.62	18.	13 double	20	63	17	.018	.160	.00035
Peanut butter	.58	16.	1 T.	19	64	17	.018	.160	.00035
Pears (fresh)	5.57	158.	1 large	4	7	89	.032	.09	.0005
Peas, dried	.99	28.1	2 T.	28	2	70	.04	.25	.0015
Peas, green	3.52	99.9	4 T.	28	4	68	.032	.24	.0016
Pecans	.46	13.	8	6	87	7	.016	.104	.00035
Pineapple (fresh)	8.18	232.	½ c. scant	4	6	90	.04	.14	.0011
Plums	4.18	118.5	3–4 large	4	6	90	.029	.064	.0006
Potatoes	4,23	120.	1 med.	11	1	88	.019	.166	.0015
Potatoes, sweet	2.86	81.2	1 small	6	5	89	.02	.08	.0004
Prunes (dried)	1.17	33.2	4–6 (30's–40's)	3	0	97	.02	.08	.0009
Raisins	1.02	29.	20	3	9	88	.02	.08	.001
Rhubarb	15.27	433.	8 stalks	10	27	63	.26	.3	
Rice (polished)[4]	1.01	28.5	2 T.	9	1	90	.003	.057	.0003
Rye flour	1.01	28.5	3½ T.	8	0	92	.005	.22	
Spinach	14.76	418.4	scant qt.	36	10	54	.37	.54	.0133
Squash	7.4	210.	9 T.	12	10	78	.054	.17	.0017
Sugar	.86	25.	5 t.	0	0	100	0	0	
Tomatoes, fresh	15.47	438.6	2–4 med.	15	16	69	.087	.257	.0017
Tapioca	.99	28.2	2 T.	0	0	100	0	0	
Walnuts, Calif.	.48	14.	6	10	83	7	.01	.108	.0003
Wheat flour, entire	.98	27.8	3½ T.	15	5	80	.01	.12	.0006
Wheat flour, white, process .	1.	28.3	3½ T.	12	3	85	.007	.05	.0004
Wheat, shredded	.94	27.	1	13	4	83	.016	.243	.0014

COMPOSITION OF COMMON MEASURE PORTIONS OF FOOD [2]

EDIBLE PORTION, UNCOOKED

	OZ.	GRAMS	TOTAL CAL.	PROT.	FAT	CBHY.	LIME	PHOS.	IRON
				Calories	*Calories*	*Calories*	*Grams*	*Grams*	*Grams*
Egg, whole	1.8	57	74	24	50	0	.044	.175	.0014
Egg, white	1.2	33	14	14	0	0	.004	.01	.00003
Egg, yolk	.6	17	60	10	50	0	.03	.16	.0014
Wheat flour, entire, 1 T.	.28	9.7	28	4	1	23	.017	.227	.0015
Wheat flour, entire, 1 cup	4.48	155.6	448	67	12	359	.268	4.076	.027
Wheat flour, white, 1 T.	.3	8	28	3	1	24	.002	.014	.0001
Wheat flour, white, 1 cup	5.	142	500	60	15	425	.035	.25	.002
Milk, whole, 1 T.	.7	20	14	3	7	4	.033	.042	.00005
Milk, whole, 1 pt.	17.2	487	337	64	175	98	.805	1.021	.0011
Milk, whole, 1 qt.	34.4	975	675	128	350	196	1.61	2.042	.0023
Milk, skimmed, 1 T.	.7	20	7	2.5	.5	4	.035	.044	.00005
Milk, skimmed, 1 pt.	17.2	487	179	66	13	100	.85	.108	.0012
Sugar, gran., 1 t.	.2	5	20			20			
Sugar, gran., 1 T.	.7	15	60			60			
Sugar, gran., 1 cup	7.5	210	840			840			

---

[1] Quoted from Rose's "Laboratory Manual in Dietetics", and Sherman's "Food Products", by permission.

[2] In part, quoted from Fisher's "Graphic Method in Dietetics", by permission; in part, calculated by the author, from data in Rose's "Manual."

[3] Exact figures not yet available; mineral about 3 times that in bolted.

[4] Exact figures for unpolished not yet available; mineral about 3 times that in polished.

[5] T = tablespoon. [6] c = cup. [7] t = teaspoon. Level measures.

FOODS WITH ACID BALANCE[1]

Figures are per 100-Calorie portion

CEREALS AND GRAINS		MEATS		EGGS	
Lentils	1.7	Beef	2 to 10	Yolk	7
Rice	2.7	Mutton	3 to 4	White	9.5
Corn	1.8	Veal	4 to 10	Whole	7.5
Wheat flour	2.7	Chicken	4 to 10		
Whole Wheat	3.3	Fish	4 to 12		

Possibly: prunes, plums, cranberries.[2]

FOODS WITH POTENTIAL ALKALINITY[1]

Figures are per 100-Calorie portion

LESS THAN 5	5 TO 15	
Dates	Apples	Peaches
Grapes	Apricots	Pineapple
Milk (2.6)	Bananas	Potatoes
Nuts (except peanuts)	Beans	Raisins
Onions	Cherries	Radishes
Pears	Lemons	Raspberry juice
Peas	Oranges	Squash

15 TO 25	VERY HIGH	
Beets	Celery	42.1
Cabbage	Chard	41.1
Carrots	Figs (dried)	32
Cauliflower	Cucumbers	45
Cantaloupe	Lettuce	38.6
Olives	Rhubarb	37
Tomatoes	Spinach	113

---

[1] From "Food Products", H. C. Sherman, by permission of the publishers (The Macmillan Company). Complete tables there itemized.

[2] Blatherwick.

Principles of Growth

Height and weight are only one index of physical condition. They must be interpreted in connection with other factors, as organic and muscular conditions, appetite, energy.

Growth is not constant and regular but by spurts. Increase in height and in weight usually do not proceed together but alternate.

Two types of individuals are distinguished:

a. Rapid growth in height and weight until 9 to 12 years
Slower growth 12 to 16 years
Early maturity (12 to 14 years, girls; 13 to 15 years, boys);

b. Slow growth in height and weight until 12 to 15 years
Rapid growth after acceleration begins
Late maturity (14 to 16 years, girls; 15 to 18 years, boys).

Growth is influenced by various factors.

I. Heredity.

1. Race. Americans average heavier than Europeans, and taller than Europeans except Swedish, Danish, and Dutch. Children of Irish parentage average taller than children of German parentage. Children of American-born parents are in this country taller and heavier than children of foreign-born parents.

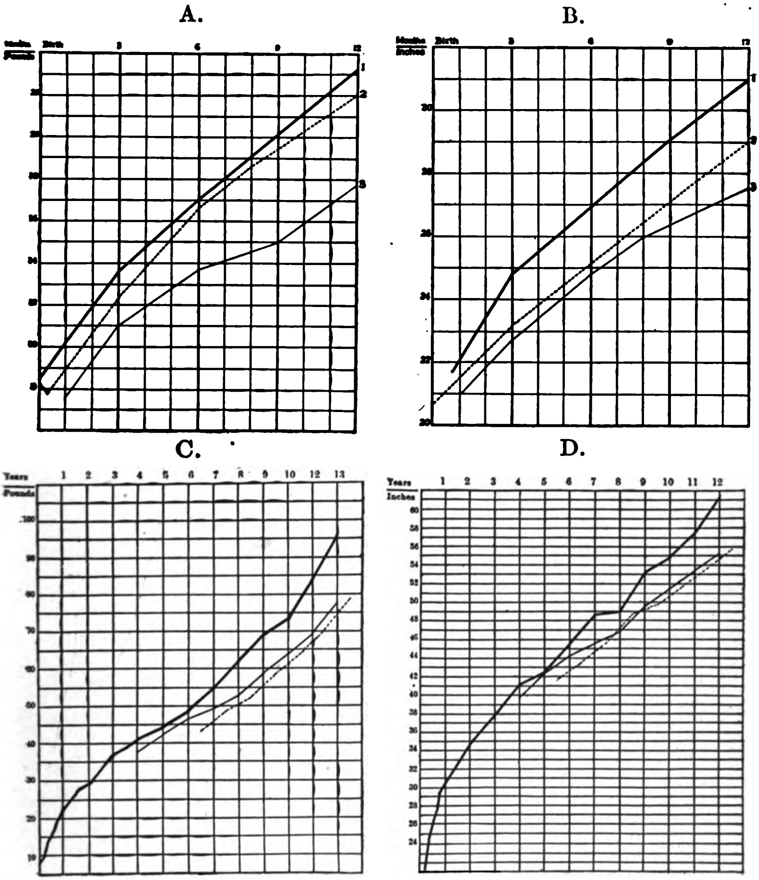
2. Family. Children tend to approximate height and build of family; good hygiene slightly increases average above immediate ancestors.

3. Sex. See pages 372–375.

II. Environment and Hygiene.

1. Hygiene. Good hygiene promotes growth in height and weight. Breastfed babies are usually found to increase more rapidly than those artificially fed, and this growth impulse continues through life. See page 100.

A comparative study recently made of (*a*) 278 children in well-nourished families, (*b*) 1,000 orphan



Height and Weight Charts.

A. Weight during the first year of 120 well-cared-for children (1) ______ ; compared with the average given by Dr. Holt (2) .... ; and that of 500 institution children (3) ______.

B. Height during the first year of 120 well-cared-for children (1) ______ ; compared with the average given by Dr. Holt (2) .... ; and that of 500 institution children (3) ______.

C. Weight of 278 well-cared-for children, ______ ; compared with 1,000 orphan asylum children, ______ ; and 69,000 school children, ...

D. Height of 278 well-cared-for children, ______ ; compared with 1,000 orphan asylum children, ______ ; and 98,000 school children, ...

asylum inmates, (*c*) 69,000 public school children, revealed a difference of six (6) inches average height and twenty (20) pounds average weight, at twelve years of age, in favor of the first group, living under good conditions of nourishment, exercise, and hygiene, above the public-school group, the asylum group being intermediate.[1]

Illness retards growth, especially weight; adenoids retard growth in height and weight.

2. Urban or rural environment. Country children average taller, heavier, and greater lung capacity than city children.

3. Season. In the North Temperate Zone, increase in height is greatest from December to July, least from June to January; growth in weight is the reverse.

Maturity. Various factors influence the age of physiological maturity.

1. Sex. Girls mature at from 12 to 16 years, two years earlier than boys, — from 14 to 18 years. The period of adjustment is longer, slower, and with less stress and upheaval with boys than with girls.

2. Growth. Children above the average in height and weight at 12 years mature earlier than those at or below average height and weight.

3. Climate. Maturity is earlier in warm climates, and later in cold climates.

4. Urban or rural environment. Maturity is earlier with city children, later with country children.

5. Stimulation. Stimulating physical or psychical influences, as a stimulating diet, use of alcohol, early social dissipation, reading and plays that stimulate sex interest, tend to cause earlier maturity.

Children mentally defective, retarded, or laggards in school, are usually shorter and lighter weight and smaller lung capacity than the median for normal children.

Children above the median in height, weight, and lung capacity (the three are usually found together) are usually above the average in school grades of other children the same chronological age. Such children may be from 1 to 5 years older physiologically and mentally than children of the same chronological age who are below the median in height and weight.

---

[1] Amer. Jour. Diseases of Children, November, 1914. Doctor Roland G. Freeman.

Proportions.

During the entire growth period the proportions of different parts are constantly changing because of their uneven rate of growth. The awkwardness, easy fatigue, and weakness during childhood and adolescence are in no small measure due to these changing proportions and their inadequacy as compared with their adjustment in maturity.

The following variations from the average are indices of weakness, and measures should be taken for bringing them to normal.[1]

1. Over average weight with under average height.[1]
2. Under average weight with over average height.[1]
3. Chest circumference less than head circumference after two years, or less by more than one-fourth inch under two years; or chest circumference less than the following proportions of the body length: first year, 60%; 1 to 6 years, 56%; 6 to 9 years, 52%.[2]
4. Circumference of abdomen more than chest.

The Tables for the first five years are a composite of the figures by Holt (compiled from several hundred hospital and private practice cases in New York City), the American Medical Association (compiled from several thousand cases in 23 States), the Life Extension Institute, and the Better Babies' Bureau of the Woman's Home Companion. In the main, the minimum figures are those of Dr. Holt, the maximum those of the Woman's Home Companion. The figures of Dr. Freeman from 278 children in private practice (see page of Charts) are from 5 to 10 per cent higher than the maximum given in the Tables, for height and weight.

All measurements are without clothing.

---

[1] **For normal relativity see tables, pages 374, 375.**

[2] ***Daten und Tabellen, Vierordt.***

Height — Boys [1]

Age	Range Inches	Gain Inches	Age	Range Inches	Gain Inches
Birth . . .	19½–20½		2 yr. . . .	31–33¾	3–4
3 mo. . . .	21–23½	3½	3 yr. . . .	34–37	3–3½
6 mo. . . .	25–26½	3¼	4 yr. . . .	36–39½	1–3
1 yr. . . .	29–29½	9–10	5 yr. . . .	39–42½	1–3

Until acceleration period, annual gain . . 1–2 inches.
During acceleration, annual gain . . . . 2–3 inches.

Acceleration period: girls, 11 to 14 years; boys, 13 to 15.

Slight gains after acceleration period.

After three years, height varies during day, being greatest on rising, shortest at night.

Weight — Boys [2]

Age	Range Pounds	Gain Pounds	
Birth	6½– 7½		Weight doubled: 5 months
3 mo. . . .	12½–		Weight trebled: 1 year
6 mo. . . .	16 –17½		Weight quadrupled: 2½ years
9 mo. . . .	17½–20		Weight fivefold: 4 years
1 yr.	20½–22	12–15	Loss of weight first 3 days
2 yr.	26½–27½	5½–6	Regained by 7th to 10th day
3 yr.	31½–33½	4½–6	Weekly gain:
4 yr.	35 –38	3½–4½	1st 5 months, 6 to 8 ounces
5 yr.	41 –43	5 –6	To 1 year, 4 to 6 ounces

Acceleration period: girls, 11 to 16 years; boys, 13 to 18.

Weight varies during day, being greatest after supper, lowest before breakfast.

Girls nearly cease growing at about 17 years, boys at about 23 years.

Lung capacity is greater in boys than girls, all ages.

---

[1] Girls average ½ inch shorter until 2 to 4 years, then 1 to 2 inches shorter until 11 to 14 years; ½ to 2 inches taller 11 to 14 years; then shorter.

[2] Girls average ½ pound lighter than boys during first year; then 1 to 2 pounds lighter until 12 years; 2 to 3 pounds heavier until 14 years, then lighter.

Relative Weight and Height Table — Boys [1]

The figures represent weight in pounds

Height in Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.	19 Yrs.	20 Yrs.
39	35															
40	38	36														
41	39	39														
42	41	41														
43	42	42	42													
44	46	44	43													
45		46	46	45												
46		48	48	48												
47			49	50	50											
48			54	53	53	53										
49				54	55	55										
50				57	58	58										
51				59	60	60	61									
52					62	62	61	63								
53					62	65	65	67	67	67						
54					65	68	68	70	71	71						
55						69	71	75	75	76						
56						71	77	76	78	79	79					
57							77	79	80	82	82					
58							78	84	85	86	87					
59								84	86	90	91					
60								85	91	94	95	90				
61									98	97	99	96				
62									99	103	106	104	104			
63									100	107	112	112	110	118		
64										114	118	120	117	120	120	
65										122	119	122	122	120	126	125
66											121	125	125	126	129	130
67											128	129	128	131	134	132
68											133	133	130	136	136	136
69												134	136	139	139	139
70												136	140	143	144	145
71													140	146	146	146
72															149	154
73																165

Relative Weight and Height Table — Girls[1]

The figures represent weight in pounds

Height in Inches	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	16 Yrs.	17 Yrs.	18 Yrs.	19 Yrs.	20 Yrs.
39	34															
40	37	35														
41	38	37														
42	41	39	39													
43	41	41	42													
44	45	43	44	42												
45		45	45	45												
46		48	47	47												
47			50	49	49											
48				51	51											
49				53	53	54										
50				56	56	57										
51					59	58	60									
52					63	62	62	63								
53						64	63	66	65							
54						69	68	69	68							
55							70	71	73							
56							75	75	76	78						
57								78	80	83						
58								83	86	88	89					
59								88	89	93	97	100				
60								94	94	96	100	104	109	103	99	99
61									99	100	102	109	109	106	105	111
62									104	104	106	111	110	107	111	114
63										107	109	116	110	112	113	114
64										112	118	116	117	114	119	115
65										114	118	121	125	120	123	125

---

[1] From the Ninth Yearbook of the National Society for the Study of Education, by courtesy of the author, Doctor Thomas D. Wood. (Data are based upon examinations, during fourteen years, of pupils in Horace Mann School, New York City.)

Pulse [1]

Age	Per Minute
Birth	130
6–12 mo.	105–115
2–6 yr.	90–105
7–10 yr.	80–90
11–14 yr.	75–85

Respiration [2]
(During sleep)

Age	Per Minute
Birth	35
1 yr.	27
2 yr.	25
6 yr.	22
12 yr.	20
Adult	16–18

Pulse and respiration in infants may be normally irregular and the rate greatly modified by apparently slight causes. In very young infants regular rhythmic breathing is seen only in sleep, and rhythm is not fully established before two years.

Temperature in young children is normally 98°–99.5°F., taken by rectum; it occasionally rises to 100.5 in apparently perfect health. It is normally higher in late afternoon.[3]

The rate of circulation (time required from leaving the heart till return to the heart) is in the newly born 12 seconds, at 3 years 15 seconds, in the adult 22 seconds.[3]

[1] Holt.

[2] *Uffelmann,* quoted by Holt.

[3] *Vierordt,* quoted by Holt.

Infant Mortality

The infant mortality rate is the number of deaths of babies which occur for every 1,000 live births. Figures in the United States are available only for that part of the country known as the registration area, where the reporting of births and deaths is legally required. It is important that the birth of every child should be registered, and that laws requiring registration should be enforced in every State.

Deaths of Infants Under One Year of Age Per 1,000 Live Births in Foreign Countries[1]

Country	Year	Rate
Russia	1909	248
Ceylon	1912	215
German Empire	1911	192
Austria	1912	180
Italy	1911	153
Switzerland	1911	123
England and Wales	1912	95
Ireland	1912	86
France	1912	78
Australia	1912	72
Norway	1911	65
New Zealand	1912	51

The New York Milk Committee states that an infant mortality rate above 50 per 1,000 is preventable by sanitation, hygiene, prenatal care, and the instruction of mothers; and that a rate beyond this is unfair to the babies, and a disgrace to the community for its negligence.

---

[1] In the United States the rate in the registration area, according to the Census of 1910, was 124 per 1,000, a total of 159,435, from which the Census Bureau estimates the total deaths for the entire country as 300,000 under 1 year of age.

Principal Causes of Death During Growth

Registration Area, United States, including about 65 per cent. of population. For the year 1913.

Cause of Death	Under 1 Yr.	1–2 Yrs.	2–3 Yrs.	3–4 Yrs.	4–5 Yrs.	5–9 Yrs.	10–20 Yrs.
1. Congenital debility . . .	60,551						
2. Premature . . birth . . .	27,359						
3. Injuries at birth . . .	5,131						
4. Digestive . .	43,243	9,942	2,653	1,124	697	1,968	2,989
5. Respiratory . (except tuberculosis, chiefly pneumonia) .	25,274	9,272	3,567	1,724	1,055	2,296	2,502
Tuberculosis .	2,491	1,879	1,053	693	507	1,702	8,350
6. Whooping . . cough . .	3,442	1,516	596	301	152	246	40
7. Measles . .	2,011	2,562	1,117	584	302	660	346
8. Diphtheria . and croup .	913	1,857	1,781	1,498	1,293	3,171	918
9. Scarlet fever .	255	618	798	684	603	1,563	621
10. Influenza . .	608	171	105	47	42	126	202
11. Smallpox[1] . .	27	4	4	3	—	5	8

The death rate is higher during the first five years than at any other five-year period; higher during the first year than any other year; highest during the first month; and its maximum is during the first week of life.

It is estimated that about fifty per cent. of all children die before they are born. Life is conferred at conception, and miscarriage is really death before birth. The registration of stillbirths, with causes, should be required by law, as it now is in some foreign countries.

Diarrhea and other digestive disorders are prevalent causes in summer; pneumonia and colds in winter.

---

[1] Before vaccine was generally used, was as prevalent as tuberculosis.

Of the deaths from summer diarrhea, about 90 per cent. are babies artificially fed, compared with 10 per cent. naturally fed.

Mortality in Pregnancy

United States Registration Area, 1913

Puerperal septicemia (blood poisoning, due to lack of surgical cleanliness in care)	4,542
Albuminaria and convulsions (usually preventable by regular examination of urine)	2,397
Accidents (frequently preventable by prenatal hygiene and skilful medical supervision)	2,703
Other causes	368
	10,010

Most of these deaths were due to preventable causes. Even with these preventable deaths, the chances of death in childbirth were only 1 in about 200 births.

In every community where instruction has been provided in prenatal hygiene and the care of infants, a marked reduction has resulted, both in prenatal deaths, in mortality in pregnancy, in infant mortality and in the inability of mothers to nurse their babies.

BIBLIOGRAPHY

The following annotated list has been carefully selected, the purpose being to include the most valuable and indispensable books, those that readers will find positively and constructively helpful, and that amplify or illustrate the principles taught in this volume. Many helpful books are necessarily omitted for lack of space.

It is usually impossible to say that any one book is the best on its subject. One book will be better than another for individual readers, according to their individual experience, training, environment, and problems. In the main, the publications listed are of approximately the same caliber as the present Manual. In the list of periodicals, note is made of those that are official publications of organizations. By including in the description of each book the year of publication, number of pages, price, and whether illustrated, the reader has some further clue to its character. Books including a bibliography are usually more systematic and scientific than those without such a list. The dates given are those of latest edition or translations, to 1916. Prices quoted are net, and do not include transportation.

I. Books.
I. *b*. Pamphlets and Bulletins.
II. Periodicals.
III. Organizations and Institutions.
† Titles especially recommended for libraries, class use, and private ownership.
a **Books of a more elementary character.**
c **Books of a more technical character.**
° Also useful for pictures.

CHAPTER I. MOTHERCRAFT AND HOME-MAKING EDUCATION

I. Barnes, Earl. Woman in Modern Society. Huebsch. 1912. 258 p. $1.25. Social responsibilities of modern women; education for home-making.

Froebel, F. Letters on Kindergarten. Bardeen. 1891. 331 p. $1.50. Froebel's plan for a training school, and description of its operation; beginnings of Pestalozzi-Froebel House.

Nearing, Scott, and Nellie M. S. Woman and Social Progress. Macmillan. 1912. 281 p. Bibl. $1.50. The biological, domestic, industrial and social phases of woman's progress; home-making education.

Oppenheim, Nathan. Development of the Child. Macmillan. 1898. $1.25. See his Chap. XI, The Profession of Maternity.

Read, Mary L. Mothercraft Education. (In preparation.) Historical review; methods and curriculum.

† Spencer, Anna G. Woman's Share in Social Culture. Kennerly. 1913. 331 p. Bibl. $2.00. Responsibilities and opportunities, in home and society.

Tarbell, Ida M. The Business of Being a Woman. Macmillan. 1912. 238 p. $1.25. Social, civic and home responsibilities.

(The three following collections are comprehensive in scope, covering the field of child development, care, training and social welfare.)

Guide Book to Childhood. Issued by the American Institute of Child Life. Synopses from authorities. Annotated reference list. $2.50.

Library of Home Economics. 1909. 12 vol. Also abridged ed. 2 vol. Bibl. Prepared by a board of authors, special authorities. Includes domestic science as well as child care and training. Issued by the American School of Home Economics, Chicago.

Parents and their Problems. 1915. 8 vol. $15. Nat. Mothers' Cong. Quotations from various authorities.

I.*b*. Andrews, Benj. R. Education for the Home. U. S. Bureau Education. 1914. 4 pamphlets. 428 p. Illus. Bibl. $.75. Survey of present status and methods of home-making education in U. S.

Bolce, Harold. Training for Motherhood. Gd. Hskp. Mag. Sept., 1912. 8 p. Illus. Sesame House for Home Life Training (London), and the School of Mothercraft (New York).

Comstock, Sarah. Mothercraft. Gd. Hskp. Mag. Dec., 1914 – June, 1915. Illus. School of Mothercraft; child care and training. Also in bound volume. Hearst. 1915. 214 p. Illus. $1.00.

Huddleston, Mrs. J. H. Should the College Curriculum be Modified? 1909. Report of Committee of Assn. Collegiate Alumnæ, regarding home-making courses in college curriculum.

Read, Mary L. What Every Mother Knows. Outlook, Feb. 3, 1912. 6 p. Scope and spirit of mothercraft training; outline of curriculum.

Read, Mary L. Mothercraft. Jour. of Heredity, Aug., 1916. School of Mothercraft and National Association.

U.S. Bureau of Education. Reading Courses for Parents. Free.

II. American Motherhood. Cooperstown, N. Y. $1.50. Popular articles on the home, child care and training.

The Child (London). Stechert. $5.25. Authoritative articles on child care, training, social welfare; special education for young women in England; book reviews.

Child Life. Amer. Insti. Child Life. Philadelphia. $1.00. Reviews of current literature on child care and training; book reviews.

Child Welfare Magazine. Lippincott. $1.00. (Mo. Cong. and Parent-Teachers' Assn.) Child training; organization reports.

Home Progress. Houghton. $3.00. Articles on home life and child training; book reviews.

Journal of Home Economics. Baltimore. $2.00. (Amer. H. E. Assn.) Popular and technical articles on home economics and home-making.

Mothers' Magazine. D. C. Cook, Elgin, Ill. $1.50. Popular articles on child training and care.

III. American Home Economics Association. Baltimore, Md. Membership organization of home economics teachers, housekeepers and others interested in progress of home life. Annual meeting; publishes annual proceedings, bulletins, Journal of Home Economics.

American Institute of Child Life. Philadelphia. An educational institution which furnishes its members personal service of books, correspondence, bulletins, on home-making, children's education, play, vocational guidance. Works through individual homes, and clubs of its members. Publishes Child Life.

International Congress of Mothers, and Parent-Teachers

Association. Washington, D. C. Mrs. Frederic Schoff, President. Organizes clubs and public meetings; furnishes speakers, programs, reading lists, literature, personal correspondence. Publishes Child Welfare Magazine. Holds annual meeting.

National Association for Mothercraft Education. New York City. Co-operates with organizations, institutions and communities in the development of systematic courses of training in mothercraft; issues bulletins.

CHAPTER II. HOME AND MARRIAGE

I. Cabot, Richard C. What Men Live By. Houghton. 1914. 341 p. $1.50. Illuminating chapters on love and marriage.

Cannon, Frank J., and Knapp, Geo. L. Brigham Young and his Mormon Empire. Revell. 1913. 350 p. Illus. $1.00. History and present ideals and customs, by a man brought up in Mormonism, and author of the play "Polygamy."

Crow, Martha Foote. The American Country Girl. Stokes. 1915. 367 p. Illus. $1.50. Includes chapters on choice in marriage, home life.

Drummond, Henry. The Ascent of Man. Potts. 1898. 346 p. $1.00. Chapters on the evolution of a mother and of a father.

Ellwood, Chas. A. Sociology and Modern Social Problems. A. B. Co. 1910. 331 p. Bilb. $1.00. Chapters on the family, values of monogamy, causes of family instability.

Gillette, John M. The Family and Society. McClurg. 1914. 164 p. Illus. Bibl. $.75. Brief history, values, tendencies, reforms; divorce.

† Goodsell, Willystine. History of the Family as a Social Institution. Macmillan. 1915. 600 p. Bibl. $2.00. History of family and marriage from primitive times; values; divorce; suggested reforms.

Hillis, Mrs. Newell Dwight. American Woman and Her Home. Revell. 1913. 186 p. $1.00. Practical psychology of harmonious family life.

Ringrose, Hyacinthe. Marriage and Divorce Laws of the World. Stechert. 1911. 270 p. $2.50. Includes Europe, Asia and America.

Wilson, Jennie L. Legal and Political Status of Women in the U. S. The author. Cedar Rapids, Ia. 1912. p. 336. $2.00. Statement of the common law, and a compendium of the laws of each State relating to marriage, property rights, divorce.

I.*b*. A Marriage Contract and Creed. School of Mothercraft. 1916. $.50. Summarizes the responsibilities and rights of each party to the contract; presented as a basis for prenuptial discussion and comparison of standards, tastes, and adjustment of practical problems.

(See also Chap. I.) Other standard writers: Lyman Abbott, Franklin H. Giddings, E. J. Hardy, George E. Howard, E. A. Ross, James H. Tufts, Lester F. Ward.

CHAPTER III. HOUSEHOLD MANAGEMENT AND EFFICIENCY

I. Frederick, Christine. The New Housekeeping. Doubleday. 1913. 265 p. Illus. $1.00. Practical demonstration of efficiency methods applied to housekeeping.

Kinne, Helen, and Cooley, Anna M. Foods and Household Management. Macmillan. 1913. 401 p. Illus. Bibl. $1.10. Dietetics, cooking, marketing, sanitation, household management, budget, laundering.

Kinne, Helen, and Cooley, Anna M. Shelter and Clothing. Macmillan. 1915. 377 p. Illus. Bibl. $1.10. Furnishing, heating, cleaning, textiles, sewing.

Nesbitt, Florence. Low Cost Cooking. Amer. School H. E. 1915. 127 p. Illus. Bibl. $.50. Economy in recipes, menus, buying, fuel; home-made fireless.

Richards, Ellen H. Cost of Living. Wiley. 1915. 154 p. Illus. $1.00. How to practically reduce cost by organization and sanitation.

Do. Cost of Food. Wiley. Rev. Ed. 1915. Illus. $1.00.

I.*b*. Andrews, Benj. R. A Survey of your Household Expenses. T. C. 1912. 12 p. $.10. Practical methods of apportioning expenses and keeping household accounts.

Furst, Mary L. Household Management. T. C. 1911. 24 p. Bibl. $.10. Syllabus giving helpful bird's eye view of household management. U. S. Dept. of Agriculture, Washington. Pamphlets on equipment, economy.

II. Housewives' Magazine. Housewives League, New York City. $1.00. Pure foods, improved markets, practical marketing.

Journal of Home Economics (See Chap. I.)

See also Good Housekeeping Magazine, Ladies Home Journal, Delineator, Forecast.

III. Good Housekeeping Institute, New York City.

Examines housekeeping utensils and foods; issues bulletins.

Housewives League. 25 W. 45th St. New York City. Membership organization of housewives for pure food, sanitary markets, honest weights, reduction of food cost.

(See also Chap. IX.)

CHAPTER IV. EUGENICS, BIOLOGY, SEX HYGIENE

I. Cabot, Richard C. The Christian Approach to Social Morality. Y. W. C. A. Press, N. Y. C. 1913. 99 p. $.50. The Consecration of the Affections and other essays.

Cabot, Richard C. What Men Live By. (Chap. II.)

Davenport, Chas B. Heredity in Relation to Eugenics. Holt. 1911. 298 p. Illus. Bibl. $2.00. Biological data and family histories tracing heredity of unit characters and methods of transmission.

Davenport, Chas. B. State Laws Limiting Marriage Selection. Eugenics Record Office, Cold Spring Harbor, Long Island. 1913. 66 p. Ill. Bibl. $.40. Laws for each state; criticism from eugenics standpoint.

Dawson, George E. The Right of the Child to be Well Born. (*a*) Funk. 1912. 144 p. Illus. $.75. Principles of eugenics; responsibility toward the child.

Exner, M. J. The Physician's Answer. Y. M. C. A. Press, N. Y. C. 1913. 50 p. $.25. Medical authority contradicting prevailing misconceptions regarding sex.

Foerster, F. W. Marriage and the Sex Problem. Stokes. 1912. 228 p. $1.35. Biological, medical, psychological and social phases.

Galton, Francis. Eugenics: Its Definition, Scope and Aims. Amer. Jour. of Sociology, July, 1904. Also in his Sociological Papers.

Geddes, Patrick, and Thomson, J. Arthur. Sex. Holt. 1914. $.50. Biological and sociological aspects of sex in human life.

† Guyer, M. J. Being Well-born. Bobbs-Merrill. 1916. 250 p. Illus. Bibl. $1.00. A popular and interesting account of genetics and eugenics, thoroughly scientific.

† Jewett, Frances G. The Next Generation. (*a*) Ginn. 1914. 235 p. Ill. Bibl. $.75. Concrete account of heredity and eugenics, especially for young people.

Jordan, David S. Heredity of Richard Roe. (*a.*) Unitarian Press, Boston. 1913. 165 p. $1.20. In story form; the principles and facts of heredity and eugenics.

† March, Norah H. Towards Racial Health. Routledge. 1915. Illus. Bibl. 326 p. $1.50. A comprehensive

book especially for young people, includes physical, biological, psychological and social phases.

Pussey, Wm. A. Syphilis as a Modern Problem, American Medical Assn.Press, Chicago, 1914. 128 p. $.25. An authoritative statement regarding medical and social phases.

Reed, Chas. A. L. Marriage and Genetics, Galton Press, Cincinnati, 1913. 183 p. $1.00. The most definite statement of practical application of laws of heredity of unit characters; the eugenic medical examination.

Saleeby, C. W. Parenthood and Race Culture. Moffatt. 1909. 398 p. $2.50. Principles of eugenics in theory and practice; race poisons.

II. The Eugenics Review. Edited by Eugenics Education Society. Huebsch. $5.25. Authoritative articles on heredity and social phases of eugenics.

The Journal of Heredity. Edited by Amer. Genetic Assn. Washington, D. C. $2.00. Articles on plant, animal and human heredity; eugenics. Book reviews.

Social Hygiene. Edited by Amer. Social Hygiene Assn., New York City. $2.00. Devoted especially to these phases of social reform.

III. American Genetic Association. Washington, D. C. Devoted chiefly to biological research and study.

American Social Hygiene Association. New York City. Chas. W. Eliot, Hon. Pres. Devoted to social surveys, legislation, law enforcement, education; lecture bureau, lantern slides, pamphlet literature, information bureau.

Eugenics Education Society. London. Founded by Francis Galton. Conducts public lectures for education; issues pamphlets.

Pamphlets issued by the above organizations, also by Health Education League (Boston), and by Association Press.

Examination of family histories, with advice on hereditary probabilities, made by Eugenics Record Office, Cold Spring Harbor, L. I. No fee.

Physical examinations (Chap. VIII).

(See also Chap. X 4C.)

CHAPTER V. GROWTH AND DEVELOPMENT

I. Baldwin, Burt T. Physical Growth and School Progress. (c) U. S. Bureau Educ. 1914. 188 p. Charts. Bibl. $.25.

Baldwin, James M. Story of the Mind. (*a*) Appleton 1898. p. 226 Illus. $.35. Brief, clear, concrete statement of psychology, with applications.

Barnes, Earl. Studies in Education. The author, Philadelphia, Pa. Each vol. $2.00. Two volumes containing twenty illuminating studies of children's social ideas and ideals.

Bryan, E. B. Nascent Stages in Development and their Pedagogical Significance. Ped. Sem. Oct., 1900. 39 p. Bibl. Summary of characteristics and interests of childhood, youth, adolescence.

Chamberlain, A. F. The Child. Scribner. 1900. 495 p. Illus. Bibl. $1.50. A compendium of researches to date; growth, physical and psychological development, meaning of youth, play; the child and the savage.

Drummond, W. B. The Child: His Nature and Nurture. (*a*) Dutton. 1910. 146 p. Bibl. $.35.

Hall, G. Stanley. Aspects of Child Life. Ginn. 1907. 326 p. Bibl. $1.50. Reports of special studies on contents of children's minds, collecting, curiosity and interest, ownership, day dreaming, dolls.

Hall, G. S. Adolescence. (*c*) 2 vol. Appleton. 1904. $7.50. Detailed study of physical and mental development; pedagogy of special subjects.

Hall, G. S. Youth: Its Education, Regimen and Hygiene. Appleton. 1911. 379 p. $1.50. Period from twelve to twenty years. Abridgement of the author's books on Adolescence.

† Kirkpatrick, E. A. The Individual in the Making. Houghton. 1911. 333 p. Bibl. $1.20. Principles of development; stages of development; education adapted to different stages.

Lamoreaux, Antoinette. The Unfolding Life. (*a*) Revell. 1907. 188 p. $.75. Psychological and religious development from infancy to adolescence, with special reference to religious training.

Preyer, W. Mental Development of the Child. Appleton. 1909. 176 p. $1.00. Conclusions from author's earlier studies; some of the more important points on which the development of the child's mind depends.

† St John, Edward P. Child Nature and Child Nurture. (*a*) Pilgrim. 1911. 106 p. Bibl. $.75. A textbook for parents' classes. Special references to moral and religious training.

Sully, James. Children's Ways. Appleton. 1897. 193 p.

$2.00 The development of children in their play, fancy, language, drawing, fears, moral and social life; scientific and human.

†Tanner, Amy E. The Child. Rand. 1915. 430 p. Illus. Bibl. $1.25. Practical, up-to-date handbook, with very complete bibliographies.

Tracy, Frederick. Psychology of Childhood Heath. 1912. 219 p. $1.25. Development of senses, intellect, feelings, will, language, æsthetic, moral and religious ideas; psychopathic conditions in childhood.

† Tyler, John M. Growth and Education. Houghton. 1907. 294 p. Bibl. Illus. $1.50. Evolution in child and race; detailed account of physical and psychological characteristics in each stage of development; educational applications.

II. Pedagogical Seminary. Clark University, Worcester, Mass. G. Stanley Hall, Editor. $5.00. Reports of special studies in genetic psychology, growth, development; book reviews, bibliographies.

(See also Chap. XI.)

CHAPTER VI. PRENATAL HYGIENE; MOTHERHOOD, FATHERHOOD

I. Abbott, Ernest Hamlin. On the Training of Parents. Houghton. 1908. 140 p. $1.00. Concrete essays and stories on preparation for child training.

Bishop, Emily M. Daily Ways to Health. (Chap. VIII.)

Call, Annie P. Power through Repose. Little. 1892. 201 p. $1.00. How to relax, overcome nervousness, gain mental poise.

Galbraith, Anna M. Four Epochs of a Woman's Life. Saunders. 1913. 244 p. Illus. $1.50. Special hygiene and physiology of girlhood, womanhood, marriage, maternity and middle age.

Hollander, Bernard. Nervous Disorders of Women. Saunders. 1916. 207 p. $1.50. Common nervous disorders and their rational treatment by hygiene, hygienic measures and mental treatment.

Latimer, Caroline W. Girl and Woman. Appleton. 1913. 318 p. $1.50. Personal hygiene, special physiology and hygiene for young women. Written by a physician and biologist.

Norris, Kathleen. Mother. Doubleday. 1911. 172 p. $1.00. A story of the mother's responsibilities and her opportunities.

Rice, Susan T. Mothers' Day. Moffat. 1915. 363 p. $1.00. Origin, history, celebration, significance, as related in prose and poetry.

Rice, Susan T. The Mother in Verse and Prose. Moffat. 1916. 357 p. $1.50. Large volume including poems of motherhood, lullabies; prose excerpts from writers on the mothers of the famous.

Richards, Florence H. Hygiene for Girls. Heath. 1913. Illus. $.70. Individual and community hygiene, with chapter on special hygiene for young women; written by a physician.

Stuart, Ruth M. Sonny. Century. 1908. 135 p. $1.00. A short story of parental aspirations and experiences.

I.*b*. West, Mrs. Max. Prenatal Care. U. S. Children's Bureau. 1915. 84 p. Illus. Free. Simple and practical.

(See also Chaps. IV, VII, VIII, XX.)

Chapter VII. Infant Care

I. Fiske, John. The Meaning of Infancy. Houghton. 1909. $.35. The value of infancy to the child, the parents, society.

Forsyth, David. Children in Health and Disease. Blakiston. 1909. 336 p. Illus. $3.00. Physiology and psychology of infancy; hygiene of childhood; diagnosis and care of children's diseases.

Griffith, J. P. Crozier. Care of the Baby. Saunders. 1914. 455 p. Illus. $1.50. Special attention to care of sick infants and children.

King, F. Truby. Feeding and Care of Baby. (*a*) Macmillan, 1913. 162 p. Illus. $.40. Practical, comprehensive, modern, many illustrations. Handbook of the New Zealand Society for Health of Women and Children.

Morse, John L. and Talbot, Fritz B. Diseases of Nutrition and Infant Feeding. Macmillan. 1915. 346 p. Illus. $2.50. Comprehensive, authoritative and practical discussion of milk, maternal nursing and artificial feeding.

Newman, George. Infant Mortality. Dutton. 1907. 356 p. $2.50. Social study of the extent, causes and prevention of infant mortality; extensive statistics.

Pfaundler and Schlossmann. The Diseases of Children. Trans. from the German by Shaw and La Fetra. 7 vol. Lippincott. 1908–14. Illus. Collection of articles by eminent German authorities on development, feeding and therapy, as well as disease.

Ramsey, Walter R. Hygiene of Infancy. Dutton. 1916. 198 p. Illus. $1.00. Infant physiology and growth; daily care; feeding; ailments and diseases, and their care. Thoroughly modern, simple, practical.

Standard works, both popular handbooks and technical volumes on pediatrics: Cotton, Fischer, Holt, Kerley, Starr. Other standard works on pediatrics by Carr, Chapin and Pisek, Koplik.

U. S. Census Bureau. Vitality Statistics. 1913. Includes tables showing infant mortality, by causes and years.

I.*b*. West, Mrs. Max. Infant Care. (*a*) U. S. Children's Bureau. 1915. 37 p. Illus. Free. Simple and practical directions for care and feeding.

Pamphlets on infant hygiene and care issued by State and city Departments of Health, and by American Medical Association Press.

Pamphlets on infant mortality, child welfare exhibits and campaigns, issued by the U. S. Children's Bureau.

Daily Record Sheet. Issued by School of Mothercraft 31 in set. $ .25. Blank form similar to schedule in text, for daily records.

Weight Chart. Issued by School of Mothercraft. Uniform with Record. $.05.

II. American Journal of Diseases of Children. A. M. A. Press. $3.00. Scientific articles; reviews and reference list of current publications and articles in pediatrics, infant care, nutrition.

Archives of Pediatrics. New York City. $3.00. Scientific and popular articles on child hygiene, infant care and welfare.

Pediatrics. New York City. $2.00. Technical and popular articles on infant hygiene and welfare; book reviews.

III. Association for Study and Prevention of Infant Mortality. Baltimore. Membership organization of physicians, social workers, teachers. Annual conference. Printed proceedings include valuable papers. Arranges exhibit material, issues pamphlets.

Child Welfare Exhibit Association, New York City. Issues graphic exhibits, pamphlets; conducts local surveys and exhibits for child welfare, including infant mortality.

Russell Sage Foundation, Child Hygiene Division. New York City. Conducts research; issues pamphlets.

(See also Chap. XX.)

CHAPTER VIII. CHILD HYGIENE

I. Bancroft, Jessie H. Posture of School Children. Macmillan. 1913. 327 p. Illus. Bibl. $1.50. Hygiene of posture; exercises for preventing and overcoming defects from wrong posture.

Bigelow, M. A. and Anna N. Applied Biology (Chap. XVII). Chapters on physiology and hygiene.

Bishop, Emily M. Daily Ways to Health. Huebsch. 1910. 310 p. $1.50. Exercises (without apparatus) for vitality, overcoming nervousness, constipation, wrong posture; gaining poise.

Carrington, Thos. S. Fresh Air and How to Use it. Nat. Assn. for Study and Prev. of Tuberculosis. 105 E. 22 St., N. Y. C. 1912. 250 p. Illus. $1.00. Methods of ventilation; window tents, roof bungalows, sleeping porches, tent houses, open-air bungalows; clothing, bedding, furniture for open-air sleeping.

Horsley, Victor and Sturge, Mary D. Alcohol and the Human Body. Macmillan. 1915. 290 p. Illus. Bibl. $.40. Physiological effects of alcohol upon different organs and tissues and upon intelligence; effects of alcohol upon children.

Jewett, Frances G. Gulick Hygiene Series, edited by Luther H. Gulick. Ginn. Book I. Health and Safety. 1916. 189 p. Illus. Bibl. $.40. Book II. Physiology, Hygiene and Sanitation. 1916. 359 p. Illus. Bibl. $.65. Written especially to interest children in hygiene.

Müller, J. P. My System for Children. 1912. 117 p. Illus. $1.25. Physical exercises for children, from infancy.

O'Shea, M. V. and Kellogg, J. H. The Body in Health. Macmillan. 1915. 324 p. Illus. $.65. Written for children, in a way that will naturally interest them in the practice of hygiene.

Sadler, Wm. S. Cause and Cure of Colds. McClurg. 1910. 147 p. Illus. $1.00. How colds may be prevented and how treated.

Short, A. Rendle. The Newer Physiology. Wood. 1915. 266 p. Bibl. $1.00. Treats comprehensively of the new developments in physiology, including digestion, amino acids, vitamines, acidosis; the ductless glands, cerebral localization.

Terman, Lewis M. The Hygiene of the Child. Houghton. 1914. 417 p. Illus. Bibl. $1.75. Hygiene during school age; hygiene of special organs and senses; hygiene of education; a digest of the recently accumulated knowledge of child development and hygiene.

Walker, Emma E. Beauty through Hygiene. Barnes. 1904. 306 p. Illus. $1.00. Hygienic means to physical beauty.

Wood, Thos. D. Health Essentials for Rural School Children. American Medical Assn.Press, Chicago. 1916. 25 p. $.10. Helpful pamphlet for parents and teachers.

Worcester, Elwood and McComb, Samuel. Religion and Health. Grosset. 1910. 425 p. $.75. Use of suggestion and auto-suggestion in preventing and healing of illness, especially fear and nervousness; by the founders of the Emmanuel Movement.

I.*b*. Pamphlets issued by practically all of the organizations and institutions listed in III.

Daily Record Schedule Blank. The School of Mothercraft. Set of 31. $.25. Similar to schedule in text, with space for recording.

Weight chart, for birth to 14 years. School of Mothercraft .$.05. Uniform size with those for infancy.

II. American Physical Education Review, Springfield, Mass. $1.50.

Dietetic and Hygiene Gazette, 87 Nassau St., New York $1.00.

Good Health Magazine. Battle Creek, Mich. $2.00.

Journal American Medical Association. Chicago. $5.00. A. M. A. Press.

Outdoor Life. (Anti-tuberculosis.) Outdoor Life Pub. Co. New York, $1.00.

III. American Medical Association. Chicago, Ill. Annual meeting.

American Physical Education Association. Annual Meeting. Springfield, Mass.

American Posture League. 1 Madison Ave., New York. Examines furniture, clothing and apparatus with reference to its effect on posture; issues label to approved articles.

Carnegie Institution, Washington, D. C. Research in hygiene, nutrition and medicine. Annual Year Book includes reports of studies.

Home Economics Association. (Chap. III.)

International Congress of Hygiene and Demography. Annual Report includes scientific and popular papers read at annual meeting.

Joint Committee on Hygiene of Amer. Med. Assn. and Nat. Ed. Assn.

Life Extension Institute. 25 W. 45 St., New York. Issues pamphlets, literature, publishes books and bulletins, conducts health examinations.

National Child Welfare Exhibit Association. (Chap. VII.)

National Mental Hygiene Association. 105 E. 22 St., New York. State branches in some States.

Rockefeller Institute, New York. Research work in medicine. Issues report of discoveries made by staff.

Russell Sage Foundation. New York. Conducts surveys and social studies; issues reports of studies, and popular pamphlets.

U. S. Children's Bureau. (Chap. VII.)

Physical examinations of a very comprehensive and thorough nature are conducted by the following:

Battle Creek Sanitarium, Battle Creek, Mich., and branches in other localities.

Chicago Physiological Institute, Chicago.

Life Extension Institute, 25 W. 45 St., New York. Has representatives in many localities throughout the country.

(Also Chaps. IV, VI, VII, IX, XX.)

Chapter IX. Food, Nutrition, Dietetics

I. Allyn, Lewis B. Westfield Pure Food Book. Westfield Brd. of Trade, Westfield, Mass. 1915. 68 p. $.25. List of foods that have been analyzed in Westfield Laboratory and found to conform to pure food requirements.

Cooper, Lena F. The New Cookery. Good Health Pub. Co. 1916. 412 p. Illus. $1.50. Methods of cooking most conductive to health, as taught at Battle Creek Sanitarium. Caloric value of each recipe.

Farmer, Fannie M. Boston Cooking School Cook Book. Little. 1915. 648 p. Illus. $1.80. Standard cook book, revised.

Fisher, Irving. A Graphic Method in Practical Dietetics. American Medical Assn.Press, Chicago. 1907. Illus. $.10. A method for computing the caloric value of any quantity or combination of foods. Tables of 100-calorie portions, common foods.

Noorden, Karl H. von. Metabolism and Practical Medicine. (*c*) Vol. I. 1907. Source and authority for much of present teaching in nutrition. $5.00

Rose, Mary S. A Laboratory Handbook for Dietetics. (*c*) Macmillan. 1912. 127 p. $1.10. Most complete collection of tables of food composition; methods of analyzing foods, dietaries.

Sherman, Henry C. Chemistry of Food and Nutrition. (*c*) Macmillan. 1911. 355 p. Bibl. $1.50. Thorough discussion of food chemistry and principles of nutrition.

Sherman, Henry C. Food Products. Macmillan. 1914. 594 p. Illus. Bibl. $2.25. Discussion of specific food groups and foods; composition, source, place in dietary. Tables of food composition, including acid or alkali balance.

Underhill, Frank P. Physiology of the Amino Acids. Yale. 1915. Illus. Bibl. 158 p. $1.35. Thorough discussion of the amino acids in specific protein foods, and their significance in nutrition, so far as yet known.

Wiley, Harvey W. Not by Bread alone. Hearst. 1915. 354 p. $2.00. Principles of nutrition, with special reference to feeding of children, and economy in food.

Mendel, L. B. Childhood and Growth. Stokes. 1905. 53 p. $.60. Brief, practical discussion of composition of food in childhood, for mothers.

I.*b*. Atwater, W. O. and Bryant, A. P. Composition of American Food Materials. U. S. Dept. Agriculture. Revised Bulletin 28. 87 p. $.10.

Blatherwick, N. R. Specific Rôle of Foods in Relation to Composition of Urine. (*c*) Reprint. Author, Yale University, New Haven, Conn. 1914. Study of acid and base-forming goods. (Prunes, plums, cranberries found exception to fruits as base-forming.)

Hunt, Caroline L. Daily Meals of School Children. (*a*) U. S. Dept. Agri. 62 p. Principles of feeding. Recipes for meals and lunches.

Mendel, Lafayette B. Changes in Food Supply and their Relation to Nutrition. Yale. 1916. 61 p. Bibl. $.50. Resumé of present knowledge of nutrition.

Mendel, L. B. Newer Points of View Regarding the Part Played by Different Food Substances in Nutrition. 15 p. Journal of A. M. A., Sept. 5, 1914. Also Reprints. Amer. Med. Assn.Press metabolism of proteins; amino acids.

Mendel, L. B. Nutrition and Growth. Journal of A. M. A., May 8, 1915. 27 p. Also reprint. Amer. Med. Assn. Press. Reviews older and new views of physiology of growth, recent studies of different specific foods.

† Rose, Mary S. Feeding of Young Children. (*a*) Teachers College, New York City. 1911. 10 p. $.10. Practical principles; menus; analysis of menus.

Rose, Mary S. Food for School Boys and Girls. (*a*) Teachers College. 1914. 15 p. $.10. Practical principles; menus.

School of Mothercraft. Menu Sheets. 1916. 31 in set. $.25 per set. $.50 per 100. Form similiar to pp. 180–3, with space for recording.

School of Mothercraft. Diet Analysis Sheets. 1916. 100 in set. $.50. Form similar to p. 178. Space for recording.

U. S. Department of Agriculture pamphlets on food values, specfic foods, cooking, cover a wide range, and are authoratative. Sent free.

II. Journal of Home Economics. (See Chap. I.)

Articles on nutrition and dietetics also appear in the pediatric journals (Chap. VII) and periodicals devoted to hygiene (Chap. VIII).

Technical articles appear in the American Journal of Physiology and the Journal of Biological Chemistry.

(See also Chap. VIII.)

CHAPTERS X AND XII. EDUCATIONAL PRINCIPLES AND CURRICULUM

For greater convenience to the reader the references in this chapter are grouped first by subjects.

1. General books on principles and methods of education, pedagogy.

A. Systematic and textbooks.

Dearborn, George V. N. How to Learn Easily. Little. 1916. 125 pp. $1.00. From the standpoint of psychology and physiology.

Dewey, John. Interest and Effort in Education. Houghton. 1913. 101 p. $.60. The significance of each factor; their practical usage.

†Dewey, John. The School and Society. U. of C. 1912. 129 p. Illus. $1.00. Discussion of principles in elementary education; resumé of work in the Experimental School.

Dewey, John and Ethel. Schools of To-morrow. Dutton. 1915. 316 p. Illus. $1.50. Describes and comments upon progressive educational work as conducted at the Francis Parker, Gary and other selected schools, School of Organic Education, Teachers College kindergarten.

Graves, Frank P. Great Educators of Three Centuries. Macmillan. 1912. 289 p. Bibl. $1.10. The life work and influence of Comenius, Rousseau, Pestalozzi, Froebel and others to Spencer.

Henderson, Charles H. Education and the Larger Life. Houghton. 1902. 386 p. $1.30. Essays on organic education and the social purposes of education.

Henderson, C. H. What Is It to Be Educated? Houghton. 1914. 456 p. Bibl. $1.50. Supplementary to the author's previous volume.

James, Wm., Talks to Teachers on Psychology and to Student on Life's Ideals. Holt. 1899. 301 p. $1.50. Practical application of psychology to teaching and learning.

Partridge, George E. Genetic Philosophy of Education. Sturgis. 1912. 401 p. Bibl. $1.00. A clear epitome of the educational writings of G. Stanley Hall.

Thomson, Wm. H. Brain and Personality. Dodd. 1908. 335 p. Illus. $1.00. The physical basis of mind, evolution of the nervous system, anatomy and physiology of the speech mechanism; practical applications of neurology to psychology.

B. Popular.

Allen, Mary Wood. Making the Best of our Children. McClurg. $ 1.00 each.
Vol. I. Children to nine years.
Vol. II. Eight to twenty years.
Practical phases of physical, mental, social and religious training.

Birney, Mrs. Theodore. Childhood. (*a*) Stokes. 1905. 254 p. $1.00. Friendly, practical discourses by the founder of the Inter. Mothers' Congress.

Burbank, Luther. The Training of the Human Plant. Century. 1907. 100 p. $.60. The needs, rights and potentialities of children; application of principles of biology to childhood and education.

Fisher, Dorothy Canfield. Mothers and Children. Holt. 1914. 285 p. $1.00. The child's point of view; training in obedience.

†Forbush, Wm. B. The Coming Generation. (*a*) Appleton 1912. 402 p. $1.50. Forces working for the betterment of American young people; betterment in the home, through birth and better health, through education, through religious and social nurture and service.

Gruenberg, Sidonie M. Your Child To-day and To-morrow. Lippincott. 1913. 234 p. Illus. $1.25. Discusses problems of punishment, children's lies, training in reasoning, training through play; sex education, obedience, will.

McKeever, Wm. A. Farm Boys and Girls. Macmillan. 1912. 325 p. Illus. Bibl. $1.50. Especially for the mother in the rural home; home conveniences, children's literature, rural recreations, and other practical problems.

†McKeever, Wm. A. Training the Boy. Macmillan. 1915. 368 p. Illus. Bibl. $1.50. Training from infancy through adolescence to develop the many-sided nature of the boy into a well-poised man; includes discussion of early childhood training, play, fighting, bad habits, vocational training, preparation for home and family life.

†McKeever, Wm. A. Training the Girl. Macmillan. 1914. 342 p. Illus. Bibl. $1.50. A companion volume to the foregoing.

2. Comenius, Pestalozzi, Froebel and Montessori.

Comenius. The School of Infancy. Heath. 99 p. Bibl. $1.00. The early educator's discussions, though antiquated in some details, are full of inspiration for the present day. Education during the first six years, chiefly through play and habits.

Pestalozzi. How Gertrude Teaches Her Children. Bardeen. 1894. 256 p. Bibl. $1.00. A concrete view of Pestalozzi's principles and methods in the education of little children in the home.

Froebel, Frederick. The Education of Man. (*c*) Appleton. 1905. 340 p. $1.50. The philosophy and principles of the kindergarten.

Froebel, Frederick. The Mother Play Book, with Miss Susan E. Blow's commentary. Appleton. 1895. 316 p. $1.50. How the mother can educate the child through his daily play and spontaneous interests.

†Hughes, James L. Froebel's Educational Laws. Appleton. 1901. 290 p. $1.50. A concise and clear resumé of Froebel's principles.

Blow, Susan E., Harrison, Elizabeth & Hill, Patty S. The Kindergarten. Houghton. 1913. 301 p. $1.25. The point of view of the conservative and the progressive leaders in American kindergarten work; official report of the Committee of Nineteen of the International Kindergarten Union.

†Harrison, Elizabeth. A Study of Child Nature. Chicago Kg. College, Chicago. 1895. 207 p. $1.00. The kindergarten idea of development of mind, soul and body, with concrete application to child nature.

†Smith, Nora A. The Home-made Kindergarten. Houghton

1912. 117 p. $.95. Practical suggestions regarding the use of the home environment and the daily home life, according to Froebel's principles.

Wiggin, Kate D. & Smith, Nora. Children's Rights. Houghton. 1892. 235 p. $1.00. The rights of the child; children's play, stories, playthings, reading; governing children.

Montessori, Maria. The Montessori Method. Stokes. 1912. 377 p. Ill. $1.75. Principles and methods elaborated by Mme. Montessori in Rome.

Hall, G. Stanley. Pedagogy of the Kindergarten. In his Educational Problems, Vol. I.

Dewey, John. Resumé and estimate of the Montessori Method, in his Schools of To-morrow.

8. Special phases of education; pedagogy of special subjects.

Burk, Frederic. From Fundamental to Accessory in the Development of the Nervous System and its Movements. Ped. Sem. 1899. 59 p.

Hall, G. Stanley. Educational Problems. Appleton. 1911. 2 vol. $7.50. Pedagogy of the kindergarten, music, dancing, industrial education, moral and religious training, sex education; drawing, reading, history; children's lies.

Halleck, Reuben P. Education of the Central Nervous System. Macmillan. Illus. 258 p. $1.00. Structure of the nervous system; training in habits; feelings, will.

Holmes, Arthur. The Conservation of the Child. Lippincott. 1912. 345 p. $1.25. Educational methods and special guidance for "the child who is different", especially for backward or subnormal children.

O'Shea, M. V. Dynamic Factors in Education. Macmillan. 1908. 320 p. Illus. Bibl. $1.25. The motor factor in education; training the motor powers, inhibition, will.

Language.

O'Shea, M. V. Linguistic Development and Education. Macmillan. 1907. 327 p. Bibl. $1.25. Development of speech in childhood; training in efficiency in oral expression; teaching a foreign language; learning to read.

Scripture, E. W. Stuttering and Lisping. Macmillan. 1912. 247 p. Ill. Bibl. $1.00. How to prevent and overcome these defects.

Wright, S. D. What the Mother of a Deaf Child Should Know. Stokes. 1914. 125 p. $.75. Early home education and care.

Special references on precocity.

Burbank, Luther. Training of the Human Plant. (Chap. X, 1. *B*.)

Terman, Lewis M. Hygiene of the Child. (Chap. VIII.)

Terman, Lewis M. Precocity and Prematuration. Amer. Jour. of Psy., April, 1905.

Tyler, J. M. Growth and Education. (Chap. V.)

4. Religious, moral, social, eugenic education.

A. Religious.

†Cope, Henry F. Religious Education in the Family. U. of C. 296 p. Bibl. $1.25. Comprehensive, practical; considers nature and interests of the child, the family life, religious teaching in the home life under present-day conditions.

Chamberlain, Georgia. Child Religion in Song and Story. U. of C. Illus. Bibl. 2 vol. Each $1.25. Application of kindergarten principles to religious education, with special reference to elementary classes in Sunday Schools.

Moulton, Richard G., Ed. Children's Series of the Modern Reader's Bible. Vol I. Old Testament. Vol II. New Testament. Macmillan, 1899. $.50 each. Bible stories told in the language of the Bible, edited especially for children, printed in small volumes, without illustrations. Invaluable for telling the Bible stories.

Smith, Elva S. and Hazeltine, Alice I. Christmas in Legend and Story. Lothrop. 1915. 283p. $1.50. Excellent collection of stories and poems, illustrated from famous paintings.

B. Moral and social.

Burgess, Gelett. The Goops and How to be Them. Stokes. 190 p. Illus. $1.50. Funny rhymes and pictures to teach very little children manners and morals.

†Cabot, Ella L. and others. A Course in Citizenship. Houghton. 1914. 386 p. Bibl. $1.25. Authorized by Mass. Branch of Amer. School Peace League. Training for citizenship in home, playground, neighborhood, nation, the world family. Compilation of illustrative stories and quotations.

Cabot, Ella L. Ethics for Children. Houghton. 1910. 254 p. Bibl. $1.25. Stories, poems and quotations, classified under specific ethical traits, arranged also by school years. Valuable for home use, with relatively slight following of yearly classification.

Dewey, John. Moral Principles in Education. Houghton. 1909. 60 p. $.35. Moral principles as a part of the method of education.

Field, Jessie and Nearing, Scott. Community Civics. Macmillan. 1915. 270 p. Illus. \$.60. Practical ways of teaching civic responsibility and action to children; especially prepared for rural life.

Gulliver, Lucile. The Friendship of Nations. Ginn. 1912. 293 p. Illus. \$.60. Story of the Peace Movement, told in stories, for children.

†James, Wm. Psychology (Briefer Course.) Holt. 1910. 477 p. Illus. \$1.50. Chapter on Habits and Will; application of psychology to their training.

King, Henry C. Rational Living. Macmillan. 1905. 271 p. \$1.25. Standards of conduct; working with nature; application of psychological principles to moral training.

Mumford, Edith E. R. The Dawn of Character. (Chap. XI.)

O'Shea, M. V. Social Development and Education. Macmillan. 1909. 575 p. Bibl. \$2.00. Training in social development from infancy, in daily life and by special methods.

Payot, Jules. The Education of the Will. Funk. 1909. 448 p. \$1.50. Education in early childhood; training in inhibition, self-control of appetites and emotions; will power.

Sneath, E. Hershey and Hodges, Geo. Moral Training in Home and School. Macmillan. 1914. 221 p. \$.80.

Pritchard, Myron T. and Tarkington, Grace. Stories of thrift for Young Americans. Scribner. 1915. 221 p. \$.60. Story-discussions for children on phases of thrift, saving time and resources, spending money; ownership.

C. Eugenics and sex education.

Bigelow, Maurice A. Methods in Sex Education. Macmillan. 1916. 150 p. \$1.00. A thorough review of the history and pedagogy of sex education. A most valuable handbook for the educator and parent. Annotated bibliography.

Chapman, Mrs. Rose W. How Shall I Tell my Child? Revell. 1912. 62 p. \$.25. Simple, giving biological facts with beauty and poetry, as a little child appreciates them.

Lyttleton, Rev. E. Training of the Young in Laws of Sex. Longman. 1912. 117 p. \$1.00. Written for parents and teachers. Points out methods of instruction and training, and the relating of this subject to other phases of life. Does not include biological data.

Morley, Margaret W. The Spark of Life. Revell. 1913. 62 p. $.25. Simple stories of nature, as told to a little child.

(See also Chap. IV, especially Cabot, Foerster, Jewett, March, Smith; and Chap. XVII, Bigelow, Morley.)

II. Kindergarten and First Grade. Bradley. $1.25. Suggestions for handwork, stories, educational play, for mothers and kindergartners.

Kindergarten-Primary Magazine. Kindergarten Magazine Co., Manistee, Mich. $1.00. Also popular magazine for mothers and kindergartners.

Religious Education. Rel. Ed. Assn. (See below.) $3.00. Valuable articles on religious education in childhood and adolescence, both in home, school and church. Non-sectarian.

Teachers College Record. Teachers College. $1.50. Valuable reports and articles on progressive and practical educational work, by members of Teachers College faculty.

Pedagogical Seminary. (See Chap. V.)

(For popular magazines on child training see list Chap. I.)

III. International Kindergarten Union. Bradley.

Professional organization of kindergartners. Annual meeting.

The Montessori Educational Association, Washington, D. C. Membership organization.

Moral Education League. Washington, D. C. Membership organization for the promotion of moral education in home and school. Issues leaflets and books.

National Education Association. Professional organization of educators in all fields. Annual meeting. Reports of proceedings contain many valuable papers on all phases of education.

National Kindergarten Association. New York City. Encourages development of kindergartens in new centers.

Religious Education Association. 330 S. Michigan Ave., Chicago. Membership organization of educators, clergy, parents and laymen of all sects, interested in the furtherance of religious education and religious pedagogy. Annual meeting. Reports of proceedings contain valuable papers.

U.S. Bureau of Education, Washington, D. C. Dr. Philander P. Claxton, Commissioner of Education. Through its various divisions gathers data and statistics, makes surveys, disseminates information. Issues monthly bibliography and pamphlets, and annual report.

CHAPTER XI. STUDY OF INDIVIDUAL CHILDREN

Davis, Jesse B. Vocational and Moral Guidance. Ginn. 1914. 303 p. Bibl. $1.25. Contains suggestions for study of personality and abilities.

Dearborn, George. Motor-Sensory Development. Warwick. 1910. 215 p. Illus. $1.50. A psychologist's observations of his daughter during the first three years.

Grahame, Kenneth. The Golden Age. Lane. 1905. 225 p. $1.00. Stories revealing the mind and feelings of four young children who were not understood by their elders.

Hoag, E. B. Health Index of Children. Whitaker & Ray-Wiggin Co. San Francisco. 1910. 188 p. $.80. Points for observation in physical examination; methods of physical inspection.

Major, David R. First Steps in Mental Growth. Macmillan. 1906. 355 p. Illus. $1.25. Observations made by the author during the first three years of his son's development; includes sensory development, motor activities, drawing, language, feelings, fears.

Montessori, Maria. Pedagogical Anthropology. (*c*) Stokes. 1913. 508 p. Illus. $3.50. Studies in physical growth and condition of children, with special reference to education; methods.

Mumford, Edith E. R. The Dawn of Character. Longman. 1911. 225 p. $1.20. A study of child life; includes studies of different types of children.

Parsons, Frank. Choosing a Vocation. Houghton. 1909. 165 p. $1.00. Detailed outlines for study of personality, tastes, abilities.

Partridge, George E. Outlines of Individual Study. Sturgis. 1910. 240 p. Bibl. $1.25. Popular survey of methods of physical inspection, psychological tests, study of personality.

Perez, Bernard. First Three Years of Childhood. Barnes. 294 p. $1.50. Trans. from French. A father's observations on physical and psychological development of his son.

Shinn, Milicent W. The Biography of a Baby. Houghton. 1900. 247 p. $1.50. Story of the physical and mental development during the first year; the author's observations of her niece.

Terman, Lewis M. Measurements of Intelligence. Houghton. 1916. Illus. Bibl. 362 p. $1.50. Methods of making mental tests; the Stanford University revision of the Binet-Simon tests.

Whipple, Guy M. Manual of Physical and Mental Tests. (*c*) Warwick. 1910. 533 p. Illus. Bibl. $2.50. Anthropometrical tables; psychological tests as conducted in the laboratory.

Read, Mary L. Score Sheets for Study of the Individual Child. School of Mothercraft. 1916. Loose-leaf pages, similar to outline in Chapter XI of the Mothercraft Manual, but arranged with space for records and with items pertinent to each chronological year, one set for each year. Per set $.50.

Yerkes, Robert M. and La Rue, D. W. Materials for a Study of the Self. Harvard. 1914. 24 pp. $1.00. Outlines and points for study of personality, in loose-leaf form.

CHAPTERS XIII AND XIV. PLAY AND GAMES

I. †Johnson, George E. Education by Plays and Games. Ginn. 1907. 234 p. Illus. $.90. Educational values of play; genetic development of children, and plays adapted to each stage of development.

Finlay-Johnson, Harriet. The Dramatic Method of Teaching. Ginn. 1912. 199 p. Illus. $1.00. Use of dramatic play in teaching history, geography, literature.

†Froebel, F. Mother Play, with Music. Appleton. Illus. 300 p. $1.50. The classic on education through play, with the youngest children.

Poulsson, Emilie. Finger Plays. Lothrop. 1893. 80 p. Illus. $1.25. Songs, music and poems, chiefly about nature, with illustrated directions for playing, especially for children under six.

Poulsson, Emilie. Father and Baby Plays. Century. 1907. Illus. $1.25. p. 98. Songs and rhymes for the rollicking games father likes to play with the toddlers.

Brown, Florence, W. Old English and American Games. Saul, Chicago. 1913. 55 p. Paper, $.75. Authoritative versions of fifty of the singing games, with music and directions for playing.

Hofer, Marie R. Children's Singing Games. Flanagan. 1901. 42 p. Paper, $.50. Music and directions for forty of the traditional games; very slight duplication with the Brown collection.

Newton, Marion B. Graded Games and Rhythmic Exercises. Barnes. 1908. 110 p. Illus. $1.25. Games of imitation, sense perception, and other psychological value; some traditional and singing games; for children five to ten.

Talbot, Mary White. The Book of Games. Scribner. 1913. 191 p. $1.00. Over a hundred games, many cultivating alertness, imagination, invention, initiative.

Chubb, Percival. Festivals and Plays. Harper. 1912. 403 p. Illus. Bibl. $2.00. Directions for pageants and children's plays, including costuming, stage properties; the educational possibilities of pageants.

I *b*. Leaflets issued by the Playground and Recreation Association of America.

II. The Playground. Playground and Recreation Assn. of America. New York. Devoted to play interests, especially in playgrounds and social centers. $2.00

III. Playground and Recreation Association of America. 1 Madison Ave., N. Y. C. Membership organization, devoted to playground extension.

CHAPTER XV. TOYS

I. Hall, G. Stanley. Aspects of Child Life (Chap. X.) Chapters on dolls and collections.

Starr, Laura B. The Doll Book. 1908. 238 p. Illus. $2.00. Descriptions and pictures of dolls from many countries and historic times; national customs and curiosities; manufacture; homemade.

Wade, Mary H. Dolls of Many Lands. 1913. 153 p. Illus. $1.00. Imaginary stories told by dolls from seven different countries.

(For making of toys see Chap. XVIII.)

CHAPTER XVI. STORY-TELLING AND STORIES

1. On Story-telling.

I. Bryant, Sara Cone. How to Tell Stories to Children. Houghton. 1905. 260 p. Bibl. $1.00. Simple directions for the mother and teacher; some stories.

†St. John, Edw. P. Stories and Story-Telling. Pilgrim. 1910. 99 p. Bibl. $.60. With special reference to story-telling in moral and religious education. How to tell, how to use, where to find stories.

Wyche, Richard T. Some Great Stories and How to Tell Them. Newson. 1910. 181 p. Bibl. $1.00. How to tell stories effectively; with special reference to the classic Greek and Norse myths.

Excellent books also by Julia D. Cowles, Louise S. Houghton, Angela M. Keyes, Edna Lyman, Mrs. E. N. Partridge.

2. Collections. The following collections are carefully selected for the educational values; there is necessarily some duplication in the stories in these collections.

Bailey, Caroline S. and Lewis, Clara M. For the Children's Hour. Bradley. 1906. 333 p. $1.50. More than a hundred fairy tales, fables, myths, stories of home life, nature, industries, festivals, as told to kindergarten children.

°Scudder, Horace E. The Children's Book. Houghton. 1909. 300 p. $2.50. A large volume with nearly two hundred fables, fairy tales from Abbott, Anderson, Grimm, Perrault; stories from Arabian Nights, Munchausen, Lilliput, and from Greek Myths. Illustrations from Doré, Cruickshank and others.

Cabot, Ella L. Ethics for Children. (Chapter X. 4.)

Wiggin, Kate D. and Smith, Nora A. The Fairy Ring. Doubleday. 1906. 445 p. Illus. $1.50. An excellent collection from many sources, by a kindergartner. Three other volumes in same series.

3. Myths, Legends, Classic Stories.

Bulfinch, Thomas. Age of Fable and Chivalry. Various editions. Age of Fable includes Greek myths, Odyssey, Iliad, Norse myths; Age of Chivalry, stories of Boewulf, Arthur, Roland. Some editions bound in one volume. Source book.

Clarke, Helen A. Child's Guide to Mythology. Baker. 1908. 399 p. Illus. $1.25. An unusual arrangement, grouping together myths relating to animals; plants and trees; sun, moon and stars; sky and air; mother and child. From Greek, Norse, Indian and Hindu. Illustrations from famous art.

°Holbrook, Florence. Round the Year in Myth and Song. A. B. Co. 200 p. Illus. $.60. A few myths simply told as to young children, apropos to each season.

Judd, Mary C. Classic Myths. Rand. 1901. 195 p. Illus. Bibl. $.35. About forty myths from Greek, Roman, Norse, German, Russian, as told to young children.

Jordan, David Starr. The Book of Knight and Barbara. Appleton. 1904. Illus. $1.50. Myths and nature stories told to children by the great scientist, illustrated by children.

Marvin, F. S., Mayor, R. J. C., Starwell, F. M. Adventures of Odysseus. Dutton. 1900. 227 p. Illus. $1.50. A translation from the Greek that preserves remarkably the spirit and atmosphere of the original. A source book for stories.

†Kupfer, Grace H. Stories of Long Ago. Heath. 1909. 177 p. Illus. $.75. Thirty Greek myths, as told to little children; with nineteen illustrations from famous statuary and paintings.

Brown, Abbie Farwell. Book of Saints and Friendly Beasts. Houghton. 1900. Illus. 225 p. $1.25. About twenty legends of mediæval saints and friendly beasts.

°Clay, Beatrice. Stories of King Arthur and the Round Table. Dutton. 1905. 322 p. Illus. $2.50. As told to young children; preserves the quaint atmosphere.

°Kelman, Janet H. Stories from Chaucer. Dutton. 1905. 114 p. Illus. $.50. Four tales simply told for young children in a little book.

°Lang, Jean. Stories from Shakespeare. Dutton. 1909. 114 p. Illus. $.50. Seven stories briefly told in a little book for children.

°Pilgrim's Progress. An abridged edition for children, with large illustrations in black and white by Rhead. 1898. Century. $1.50.

°Housman, Laurence, compiler. Stories from Arabian Nights. Dutton. 1911. $1.50. Six stories with 25 illustrations in color by Edmund Dulac, that express the spirit of wonder and mystery.

4. Humor.

°Burgess, G. Goops, and How to be Them. (Chap. X. 4 B.)

°Lear, Edward. Nonsense Book. Little. 250 p. Illus. $1.60. Complete edition of this classic humor in picture and verse.

Olcott, Frances J. and Pendleton, A. The Jolly Book for Boys and Girls. Houghton. 1915. 409 p. Illus. $2.00. Humorous tales from folklore, Arabian Nights, Thackeray, Dickens, Shakespeare, Aldrich, Lamb and other standard writers.

Wiggin, Kate D. Tales of Laughter. Doubleday. 1908. $1.50.

5. Heroic.

Coe, Fanny E. Heroes of Everyday Life. Ginn. 169 p. Illus. $.40. Firemen, engineers, divers, miners, laborers.

Moffett, Cleveland. Careers of Danger and Daring. Century. 1901. 419 p. Illus. $1.50. Stories of the pilot, diver, life-saver, firemen, engineer, and other modern workers.

Towle, George M. Heroes and Martyrs of Invention. (Chap. XVII.)

(See also stories of Odysseus, Thor, Arthur, Boewulf, Siegfried.)

(For stories of animals and nature, history and travel, see Chap. XVII.)

6. Poetry.

°Mother Goose. Dodd. 1914. 173 p. Illus. $2.50. Illustrated by Jessie Wilcox Smith with sixteen full-page colored pictures, and many in black and white.

°Mother Goose. Volland & Co., New York. 1915. 119 p. $2.00. Large illustrations, by Frederick Richardson, in colors.

Shute, Katherine H. The Land of Song. Book I. Silver. 1912. 190 p. $.36. Contains many of the poems suggested in the Manual, and others, for little children. No music.

°Stevenson, Burton, E. Home Book of Verse for Young Folks. Holt. 1915. 538 p. $2.00. A very comprehensive collection for children, from Mother Goose and many English and American poets. Charming decorations by Pogany.

Wiggin, Kate Douglas and Smith, Nora A. Pinafore Palace. Doubleday. 1910. 248 p. $1.50. Mother Goose and other rhymes for the nursery, selected by kindergartners.

7. Reading Lists.

Jordan, Alice M. 1000 good Books for Children. U. S. Bureau Ed. 1914. 40 p. $.05. Annotated list, chiefly story books, some science and history.

II. The Story-teller's Magazine. Newson & Co., New York. $1.00 Articles on story-telling; stories for children; book reviews.

John Martin's Magazine. John Martin's House. Garden City, Long Island, N. Y. $3.00. A quaint and jolly magazine for children 3 to 12 years.

CHAPTER XVII. SCIENCE AND HISTORY

A. Science.

I. 1. Biology, general.

†Bigelow, Maurice A. and Anna N. Applied Biology. Macmillan. 1911. 583 p. Illus. $1.40. A comprehensive

and authoritative book including general biology, botany, zoölogy, human physiology and hygiene, embryology. A source book for facts.

†Hodge, Clifton F. Nature Study and Life. Ginn. 1902. 514 p. Illus. $1.50. Studying nature in the environment, learning how to tame birds, care for animals, pets, aquarium and vivarium; how to prevent the spread of insect pests. A guide book with the children.

†Morley, Margaret W. A Song of Life. McClurg. 1891. 155 p. Illus. $1.25. A book for little children on the elements of development of life and a new generation, in plants, fishes, frogs, birds, mammals; told in story form.

†Verrill, Alpheus H. Boy Collector's Handbook. McBride. 1915. 290 p. Illus. $1.50. How to collect and preserve minerals, plants, fresh water animals, shells, stamps, coins, postcards, relics. Use of camera and microscope in collecting.

II. The Guide to Nature. The Agassiz Assn., Sound Beach, Conn. $1.00. Interesting articles for children, on nature.

III. The Agassiz Association, Sound Beach, Conn. Edward F. Bigelow, President. A nature study organization for children.

2. Animals.

°Davidson, Gladys. Helpers without Hands. Stokes. 1914. 117 p. Illus. $2.25. Animals in all parts of the world, and how they help man. Illustrated in color by Ed. Noble.

°Dugdale, Florence E. Illus. by E. J. Detmold. Book of Baby Beasts. Dutton. 1912. 120 p. Illus. $3.00. With 19 large illustrations in color.

°Eddy, Sarah J. Friends and Helpers. Ginn. 1899. 232 p. Illus. $.60. Friendly stories and poems about animals and birds. Illustrated from photographs and famous paintings.

Lang, Andrew. The Animal Story Book. Longmans. 1909. 400 p. $2.00. Stories of animals from literature and history.

Pierson, Clara D. Among the Meadow People. Dutton. 193 p. Illus. $1.00. Stories for children of common animals and birds that live in the meadows.

Schwartz, Julia A. Wilderness Babies. Little. 1905. 226 p. Illus. $1.50. Stories of how many kinds of animals care for their little ones.

Seton, Ernest Thompson. Wild Animals at Home. Doubleday. 1913. 226 p. Illus. $1.50. The author's per-

sonal adventures in studying wild animals in their native habitat. Over 150 sketches and photographs by the author.

°Book of the Zoo. Dutton. Linen, $.75. Large, beautiful picture book. (Many others at from $.25 to $2.00.)

°Animal Book. Gabriel & Sons, New York. 25 p. Linen. $.50. Beautiful animal picture books, illustrations painted from life.

3. Insects, Sea-shore, Birds.

Comstock, John H. Insect life. 1897. 347 pp. Illus. $1.75. Habits, life histories, appearance, identification.

Kellogg, Vernon. Insect Stories. Holt. 1908. 298 p. Illus. $1.50. Stories of how the author and a little girl observed and collected insects.

Mayer, Alfred G. Sea-Shore Life. Barnes. 1906. Illus. Bibl. 181 p. $1.20. Shells and seawood found along the Atlantic coast of America. Illustrations in color. A source book and aid in identification.

°Burroughs, John. Bird Stories from Burroughs. 1911. Houghton. 171 p. Illus. $.80. Delightful stories by the great naturalist, illustrated in color and in black and white by Louis Agassiz Fuertes.

°Dugdale, Florence E. Illus. by Detmold. Book of Baby Birds. Dutton. 1911. 120 p. Illus. $3.00. Nineteen large pictures in exquisite color.

°Miller, Olive Thorne. The Children's Book of Birds. Houghton. 1915. 212 p. Illus. $2.00. Stories of the common birds, identification, attracting. Some illustrations in color. Excellent first book.

Reed, Charles K. Bird Guide. Land birds. $1.00.

Water birds. $1.00 McClurg. Pocket edition, with illustration in color of each species.

I.*b*. °Audubon Bird Charts. Bradley. Large wall charts. Each, $.50. About twenty-five common birds shown on each chart, in color. Two charts for land birds, one for water birds.

°Mumford Bird Pictures. A. W. Mumford, Chicago. $1.80 per hundred. Loose-leaf pictures, natural color and size.

•Audubon Bird Pictures. Appleton. $1.80 per hundred. Pictures natural size and colorings.

II. Bird Lore. Publication of the Audubon Society. Appleton. $1.00. Stories of birds and bird life.

III. National Association of Audubon Societies. New York. Membership organization, with Junior Department for

children interested in birds; issues bird pictures and other bird literature.

4. Flowers, Plants, Gardening.

Levison, J. J. Studies of Trees. Wiley. 1914. 253 p. Illus. $1.60. Identification, structure and care of trees; woods and their use.

Mathews, F. Schuyler. Familiar Features of the Roadside. Appleton. Illus. $1.75. A handbook to aid in identifying flowers and trees, insects and birds, commonly found.

Mathews, F. Schuyler. Familiar Flowers of Field and Garden. Appleton. 1915. 306 p. Illus. $1.40. Identification, arranged by months; illustrated with about 200 drawings.

Stark, F. W. Wild Flowers Every Child Should Know. Doubleday. $.50. The most common of the wild flowers. Some illustrations in color.

Dixon, Royal. The Human Side of Plants. Stokes. 1914. 201 p. Illus. $1.50. Interesting things that plants do, such as going to sleep, swimming, walking, foretelling the weather; has all the human interest of purely fanciful tales about flowers, and is scientifically accurate.

Duncan, Frances. When Mother Lets us Garden. Moffatt. 1910. 111 p. Illus. $.75. Simple directions for outdoor and indoor gardening. Breathes the spirit of the garden; charming pictures and quotations.

5. Physics, Chemistry, Physical Geography, Geology, Astronomy.

Clark, Bertha M. General Science. A. B. Co. 1912. 363 p. Illus. $.80. Physics and chemistry of everyday life. Suggestions for observations and experiments. Source book.

†Holden, E. S. Real Things in Nature. Macmillan. 1910. 443 p. Illus. $.65. Comprehensive, including something of each of these sciences, and some primitive life history.

Blackwelder, Eliot, and Barrows, H. H. Elements of Geology. A. B. Co. 1911. 475 p. Illus. Bibl. $1.40 Structure of the earth, work of atmosphere, streams, glaciers; changes in oceans, lakes, rivers; how mountains and plains are formed; the geological ages of the past. Source book.

Houston, Ed. J. Wonderbook of the Atmosphere. Stokes. 1907. 326 p. Illus. $1.50. Climate, winds, clouds,

storms, rain, snow, lightning; heat, light and sound waves. Authoritative answering for the child's questions. Source book.

St. John, T. M. Fun with Magnetism. St. John. New York City. Illus. $.35. Book of directions, magnet and apparatus for games.

St. John, T. M. Fun with Electricity. St. John. Illus. $.65.

St. John, T. M. Fun with Chemistry. St. John. Illus. $.65. Directions for apparatus and games.

Ball, Sir Robert S. Starland. Ginn. 1907. 402 p. illus. $1.00. Authoritative and interesting accounts of the sun, moon, planets, comets, constellations.

†°Porter, Jermain G. The Stars in Song and Legend. Ginn. 1901. 129 p. Illus. $.60. Myths of the stars; sky maps showing constellations. Illustrations by A. Dürer.

Forman, S. E. Stories of Useful Inventions. Century. 1911. Illus. 248 p. $1.00. Tracing development from ancient to modern times of lighting, heating, vehicles, and modern use of steam and electricity.

Towle, George M. Heroes and Martyrs of Invention. Lothrop. 1890. Illus. 202 p. $.75. Inventors in ancient history, Gutenberg, Palissy, Watt, Fulton, Howe, and others.

Wright, Henrietta C. Children's Stories of Great Scientists. Scribner. 1909. 350 p. Illus. $1.25. Interesting stories of Galileo, Newton, Franklin, Linnæus, Faraday, Agassiz, Darwin, Huxley and others. Source book.

6. Geography and Travel.

Andrews, Jane. Seven Little Sisters. Ginn. 127 p. Illus. $.75. Stories of children of other countries, as told to children.

•Barnard, H. Clive. Pictures of Famous Travel. Macmillan. 1914. 64 p. Illus. $.75. Ships and explorers from historic to modern times told chiefly by the 60 pictures, 31 of these in color.

Carpenter. How the World is Fed. 1907. 340 p.

Carpenter. How the World is Clothed. 1908. 340 p.

Carpenter. How the World is Housed. A. B. Co. 1911. 352 p. Illus.

$.60 each. Geographical readers, showing the raising, procuring, manufacture and transportation of the necessities of life, in all parts of the world. Source book.

°Dunham, Edith. Jogging Round the World. Stokes. 1905. 80 p. Illus. $1.50. Steeds and vehicles in

strange lands and at home, with 36 large illustrations from photographs, in color.

Hall, Katherine S. Children at Play in Many Lands. Revell. 1912. 92 p. Illus. $.75. Games played by children in many countries, with directions.

Morris, Charles. Home Life in Many Lands. Vol. I. Lippincott. 1906. 250 p. Illus. $1.00. A geographical reader describing ways of living in other countries. A source book.

°Synge, M. B. A Book of Discovery. Putnam. 1912. 554 p. Illus. $2.50. The world's explorations from the earliest historical times to the finding of the South Pole. About 150 illustrations.

Little People Everywhere Series. Little. 14 vol. Illus. $.50 each. Stories of child life, play, home life, centering about imaginary individual children in some foreign land.

(See also Laura B. Starr, Mary H. Wade. Chap. XV.)

II. Everyland. A magazine for children. Stories and pictures of children and ways of living in all parts of the world. 156 Fifth Ave., New York. $1.00.

National Geographical Magazine. National Geographical Society. Washington, D.C. $2.00. Many interesting articles on countries and peoples, illustrated with numerous photographs.

Home Progress Magazine. (Chapter I.)

St. Nicholas Magazine. The Century Co. New York. $3.00. Includes interesting articles on science for children.

Stereographs and lantern slides illustrating geography, travel, sciences, issued by Underwood & Underwood, New York City, and by Keystone View Co., Meadville, Pa.

Lanterns and balopticons (for throwing any picture on a screen), furnished by Bausch & Lomb, New York City.

B. History.

1. Anthropology, Primitive and Indian Life.

Clodd, Edw. The Childhood of the World. Macmillan. 1914. 240 p. Illus. Bibl. (New ed. Revised and enlarged.) $1.20. Prehistoric man, early migrations; beginnings of inventions, language, arts; early myths and religion. Source book.

Hall, H. R. Days Before History. Crowell. 1907. 129 p. Illus. $.50. Especially the early Cave people and Lake people; life of early Aryans.

Waterloo, Stanley. Story of Ab. Doubleday. 1897. 351 p. Illus. $1.50. Story of a boy in the time of the Cavemen.

Eastman, Charles A. Indian Scout Tales. Little. 1915. 199 p. Illus. $.80. Indian methods of making fires, wigwams, cooking, taming animals, Indian signs and language.

Schultz, J. W. Sinopah, the Indian Boy. Houghton. 1913. 155 p. Illus. $1.10. True story of an American Indian boy. Illustrations by E. Boyd Smith.

†Seton, Ernest Thompson. Woodcraft. Doubleday. 1912. 567 p. Illus. $1.75. Indian traits and ways; Indian names and their meaning; Indian songs, dances, ceremonies; stories of Indian characters; scout craft, camping and camp craft. Over 500 illustrations.

2. Ancient and Classic History.

Arnold, Emma J. Stories of Ancient Peoples. A. B. Co. 1901. 232 p. Illus. $.50. Stories and legends of Egypt, Babylon, Assyria, Phœnicia, Palestine, Persia, India, China.

Gould, F. J. Tales of the Greeks. Harper. 1910. 162 p. Illus. $.75. Twenty-two tales from Plutarch's Lives. Illustrations by Walter Crane.

Gould, F. J. Tales of the Romans. Harper. 1910. 167 p. Illus. $.75. Stories from Plutarch's Lives. Illus. by Walter Crane.

°Gulick, Charles B. Life of the Ancient Greeks. Appleton. 1907. 350 p. Illus. Bibl. $1.50. Daily life among the Athenians; their houses, clothing, occupations, education, social life, customs, child life. Nearly 300 illustrations. Source book.

†Shaw, Charles D. Stories of the Ancient Greeks. Ginn. 1903. 300 p. Illus. $.60. Part I contains many of the myths; Part II, Greek history in story form. Source book.

3. Mediæval to Modern.

Andrews, Jane. Ten Boys on the Road from Long Ago to Now. Ginn. 243 p. $.50. Stories of the boy life of ten famous men of ancient and mediæval times.

°O'Neill, Elizabeth. A Nursery History of England. Stokes. 1904. 186 p. Illus. $2.25. Story of England for children; many large colored illustrations.

Steedman, Amy. When They Were Children. Stokes. 1914. 387 p. Illus. $1.60. Stories from childhood of forty-five famous men and women in mediæval and modern history, including writers, scientists, artists, inventors.

(See also Forman, Towle and Wright, Chapter XVII, A 5.)

4. American.

Barber, Lucy L. A Nursery History of the United States. Stokes. 1916. 180 p. Illus. $2.00. Simple story of great events. Ninety illustrations, many of them in color.

Bass, Florence M. Stories of Pioneer Life. Heath. *(a)* 1900. 136 p. Illus. $.40. Settling of Middle West; perils of pioneer life; stories of Marquette, Boone, Lincoln.

Brooks, Eldridge S. The Century Book for Young Americans. Century. 1896. 250 p. Illus. $1.50. Story of a children's pilgrimage to historic homes and buildings in Boston, Plymouth, New York, Washington, the South, the Middle West.

Earle, Alice Morse. Child Life in Colonial Days. 1909. 418 p. Illus. $2.50. Home life, clothing, food, play, discipline. Many illustrations.

†Eggleston, E. Stories of Great Americans for Little Americans. A. B. Co. 1895. 159 p. Illus. $.40. Stories of explorers, soldiers, statesmen, scientists, inventors, writers, artists.

Eggleston, E. Stories of American Life and Adventure A. B. Co. 1895. 214 p. Illus. $.50. Historical stories, home life and customs; from all periods and regions.

Gordy, Wilbur F. Stories of American Explorers. Scribner. 1906. 206 p. Illus. $.50. Explorers on sea and land, from Columbus to La Salle. Source book.

Stone, Gertrude, and Fickett, M. Grace. Everyday Life in the Colonies. Heath. 1905. 109 p. Illus. $.35. Tells graphically of homes, apparel, occupations, travel, play.

Stimpson, Mary S. Child's Book of American Biography. Little. 1915. 251 p. Illus. $1.00. Thirty men and women, statesmen, writers, inventors, artists, scientists.

5. Anniversary Days.

Olcott, Frances J., compiler. Good Stories for Great Holidays. Houghton. 1914. 461 p. Bibl. $2.00. Includes all civic and religious holidays observed in America. Stories from various writers appropriate to each holiday.

Schauffler, Robert H., editor. Series on Our American Holidays. Moffatt. 1908–14. about 300 p. per volume. $1.00 each. One volume devoted to each holiday, giving origin, significance, appropriate quotations, suggestions for celebration.

6. Bibliography.

Cleveland Public Library. Reading Lists for Special Days. H. W. Wilson Co. Minneapolis. 1911. 148 p. Paper,

$.25. Lists of books and magazine articles with references, for understanding and celebration of special days.

Andrews, Chas. M.; Gambrill, J. Montgomery; Tall, Lida Lee. Bibliography of History. Longmans. 1911. 224 p. $.60. With descriptive and critical annotations on each reference. Includes history in all ages and countries, technical and popular, historical fiction, children's stories preparatory to history.

III. American School Peace League. Boston. Membership organization, with Junior Department for children; issues literature.

CHAPTER XVIII. HANDWORK

I. 1. Teaching.

Ledyard, Mary F., and Breckenfeld, Bertha H. Primary Manual Book. Bradley. 1911. 121 p. Illus. Bibl. $1.20. A large-size volume containing suggestions for handwork correlated with art education, child's interest in nature, primitive life, toys; directions, quantity of material and equipment needed. Children 5 to 9 years.

Snow, Bonnie E. and Froehlich, Hugo B. Industrial Art Text Books. Books I and II. Prang. 1915. 72 p. each. $.25 each. Suggestions for drawing, cutting, water color, weaving, paper dolls, stick printing, toy theatres. 5 to 8 years.

The Graphic Drawing Books. Prang. 1914. Book I and II. Each, $.15. The newest ideas in drawing teaching; each book contains true color chart. 5 to 7 years.

2. Various processes.

Adams, Morley. Toy Making at Home. Stokes. 1916. Illus. $.50. Simple directions for simple toys from home materials. 4 to 7 years.

Johnston, Bertha. Home Occupations for Boys and Girls. Jacobs. 1908. 191 p. Illus. Bibl. $.50. Use of common material for making things; collecting; celebration of festivals. 4 to 6 years.

Rich, G. Ellingwood. When Mother Lets us Make Toys. Moffatt. 1915. 122 p. Illus. $.75. Simple toys from pasteboard, paper, wood and common materials.

3. Woodwork.

Johnson, B. W. Coping Saw Work. Bradley. Paper, $.20. Directions for simple work. 3 to 8 years.

Pierce, Frank H. Woodwork for Little Folks. Scribner. 1915. Illus. $1.00. Coping saw work. Full directions, with drawings actual size, for toys, jointed birds, animals, men; toy furniture, wheelbarrows, engine. 4 to 12 years.

Seldon, F. H. Woodwork for Grades. Orr & Locket, Chicago. 1913. 111 p. Illus. $1.25. Illustrations of all tools, equipment, movements. Simple directions for woodworking. 3 to 12 years.

4. Drawing and Painting.

Soper, Mabel B. Principles and Practice of Elementary Drawing. Scott. 1915. 147 p. Illus. $1.50. Principles and methods of teaching elementary design, drawing, color. Written as a textbook for normal school students.

Drawings to Color. 3 sets, 50 per set. J. Hammett, Boston. $.15 per set. Simple lines. Birds, fruits, animals, children, flowers. 3 to 7 years.

Mother Goose Color Cards. Bradley. 12 in set, $.15 set. To be colored. 6 to 9 years.

Prang Paint Books. Prang. Size 7 × 10. 32 p. each. $.10 each. 1. Hiawatha, 2. Robinson Crusoe, 3. Alice in Wonderland, 4. Hansel and Gretel. Simply drawn, heavy lines. 3 to 7 years.

McMahon, Jo. The Jo McMahon Colorbook. Bradley. 1915. $.30. Charming pictures, some humorous, each with a brief story and suggestions for coloring; loose-leaf form. 3 to 10 years.

5. Cutting Out.

Beard, Adelia B. The Beard Animals. Stokes. 1914. 15 p. Illus. $.75. A dozen small common animals, as rabbit, squirrel, to be cut out; life size. 5 to 9 years.

Chapman, C. Durand. Self-made Pictures for Children. Stokes. 1916. Illus. $1.00. Pictures in color, to be cut out, pasted and assembled; all relating to historical places and events.

Paper Cutting Designs. J. Hammett, Boston. 50 in set. $.15 per set. Flowers, birds, animals, children. Black on white. 5 to 10 years.

Wright, Maud A. Bird Cut-outs. Bradley. 10 in set. $.25 per set. 1. Spring and Summer Birds, 2. Summer, 3. Winter. Natural size, to color, cut out, paste together and suspend with thread.

Scantlebury, Elizabeth E. Homes of World Babies. Flanagan. 1910. 60 p. $.50. Silhouettes of children, houses, scenes from home life, from eight nationalities. Brief story, using names in Andrews' "Seven Little Sisters." 5 to 10 years.

6. Electricity and Physics.

St. John, Thomas M. The Author, New York City. 1905. 139 p. $1.00. Real Electric Toy Making. Simple toys operated by magnets and electricity. 3 to 12 years.

II. Something to Do. Bennet Publishing Co. Boston. $1. A magazine for children, with many suggestions for handwork.

School Arts Magazine. Bennett Publishing Co. Boston. $2. Art teachers' magazine; many suggestions for designs, technique, methods. Source book.

(See also St. Nicholas Magazine, Chapter XV; Kindergarten-First Grade and Kindergarten-Primary, Chapter I.)

CHAPTER XIX. MUSIC AND ART

A. Music.

I. 1. Teaching.

Damrosch, Frank. Some Essentials in the Teaching of Music. 1916. 101 p. $1.25. Not on specific method, but some essential general principles of musical education; what to expect of a music teacher.

†Lavignac, Albert. Musical Education. Appleton. 1902. 447 p. $2.00. Translated from the French. Authoritative, comprehensive; includes both instrumental and vocal music; general principles of musical education; how to select a teacher; when to begin.

Schauffler, Robert H. The Musical Amateur. Houghton. 1911. 261 p. $1.25. Chatty discussion of the evolution of a musical amateur; treats of the human rather than the technical side of music education; some principles in childhood.

2. Instrumental Rhythms and Dances.

†Crawford, Caroline, and Fogg, Eliz. R. Rhythms of Childhood. Barnes. 1915. 84 p. $1.50. Rhythms for the little child to interpret in his own way, the beginnings of folk dancing; valuable for cultivating sense of rhythm.

Hofer, Mari Ruef. Music for the Child World. Bradley. $1.25. Characteristic rhythms, many of them simple classic music, accompaniments simplified for the amateur pianist.

Crampton, C. Ward. Folk Dances. Barnes. 1914. 82 p. $1.50. From English, French, Scandinavian, Russian; with directions.

3. Songs and Voice.

†Bentley, Alys. The Song Primer. Barnes. 1910. Illustrated. $.30. A book of first songs, melody only, in large size notes; illustrations in color. Simple melodies and themes.

Bentley, Alys. Song Sentences. Barnes. 40 cards. $.40. Simple themes printed on large cards.

Bentley, Alys. Tone Plays for Children. Child Life in Song and Speech. Barnes. Paper pamphlets. Each $.10. Methods of education in tone play and singing, for children four to seven years.

Bullard, Carrie and Elliott, J. Mother Goose Songs. Hinds & Noble, New York. 124 p. Paper, $.50. The Mother Goose songs and English Folk songs.

Walker, Gertrude, and Jenks, Harriet S. Songs and Games for Little Ones. Ditson. 1912. 136 p. $2.00. An excellent collection of kindergarten songs and games.

°Chansons de France. Nursery and folk songs and singing games. Schirmer. Illus. $3.00. Traditional games, with directions for playing. French words only. Illustrated in quaint colored pictures by Boutet de Monvel.

Weld, H. P. Mechanism of the Voice and its Hygiene. Ped. Sem. 1910. pp. 143–59. Illus. Bibl. A thorough brief treatise, and invaluable reference list.

Quigley, Margery C. and others. Index to Kindergarten Songs. Amer. Library Assn., Chicago. 1915. 286 p. $1.50. Indices by subject, title, first line, author, composer; lists for special occasions. Covers all the sixty standard collections.

Scobey, Katherine L., and Horne, Olive B. Stories of Great Musicians. A. B. Co. 1905. 182 p. Illus. $.40. Incidents in the lives of musicians of interest to children.

Phonograph records for children should be light, happy rhythmic music, such as that of Mendelssohn's Spring Song, the light music of Schubert, Haydn, Weber, Gilbert and Sullivan; not heavy, tragic, complex music of the masters and moderns or the ordinary light opera or ballad.

B. Art.

1. History and Appreciation.

Hurll, Esther M. How to Show Pictures to Children. Houghton. 1914. 138 p. Illus. Bibl. $1.50. The

kinds of pictures that interest children; practical suggestions for education in appreciation; classified lists of pictures. Many illustrations of famous pictures.

Whitcomb, Ida Prentice. Young People's Story of Art. Dodd. 1906. 380 p. $2.00. Includes sculpture, architecture and painting; Egyptian, Greek, Roman, Mediæval, Modern except American. Many illustrations of famous buildings, statues, pictures.

Barstow, Charles L. Famous Buildings. Century. 1915. 246 p. $.60. From Egyptian to modern times. List of representative buildings in over twenty American cities.

2. Picture Books.

Brook, L. Leslie. Picture books. Nursery tales. Each paper cover, $.25. Strong drawing and coloring, abundant humor.

Caldecott, Randolph. Four volumes, illustrating children's classics in verse and fairy tale. Dutton. Each, $1.25; or in separate parts (16), paper cover, each $.25. Rollicking fun, strong color.

Crane, Walter. Picture books. 24 books. Dutton. Each $.25; also in combined volumes. Fairy tales, fables, nursery rhymes. Dainty, delicate coloring.

Greenaway, Kate. Mother Goose. Dutton. $.60. Pied Piper. $1.50. Other volumes with original stories. Dainty colorings, quaint drawings, touches of humor.

Nister, Ernst. Picture books. Dutton. Paper covers, $.05 to $.50; Linen books, $.50 to $1.00; board covers, $.50 to $2.00. Beautiful books in color, of animals, birds, farm life, fairy tales, nursery rhymes, Bible stories.

Gabriel books. Picture books. Paper, $.05 to $.50; linen, $.50 to $1.00. Same type and quality as Nister books.

(See also all books marked ° in previous sections of the bibliography.)

3. Reproductions of famous pictures and statuary.

Gabriel prints. Series of 12 in package, several sets, 1 × 12. $.30 package. Animals, farm life; reprints fro Gabriel books; beautifully colored from life by exper artists.

Smith, Jessie Willcox. Mother Goose Pictures, in colo sheets 10 × 12. 1916. Bradley. $.25 each.

Gems in Art, from English galleries. Colored exactly as originals. Large size, $.50; small size, sheet 6 × 8, $.15 each, 2 for $.25.

Madison Prints. Series of reproductions of masterpieces, hand-colored, large size, $1.00 each. Each picture bears descriptive note.

Masterpieces in Color. Series of 60 booklets, each with 8 reproductions, small size, accurately colored, of one artist. Stokes. $.75 each. Booklets 6 × 8; descriptive and critical text by authorities.

Copley Prints. Curtis & Cameron, Boston. Reproductions, some in color, of modern artists. Prices from $.50 up.

Cosmos Prints. Cosmos Co., New York. Hundreds of subjects, including famous paintings, statuary, architecture, portraits. 10 for $.25.

University Prints, Boston, Mass. 25 for $.25.

Perry Pictures, Malden, Mass. 25 for $.25.

Each of these series includes hundreds of subjects, in black and white, famous reproductions, size about 6 × 9, some subjects in larger series at $.05 each.

Caproni casts. Caproni & Bro. Boston. Plaster casts of famous statuary.

CHAPTER XX

Aikens, Charlotte A. Home Nurse's Handbook. (*a*) Saunders. 1912. 276 p. Illus. $1.50. A very practical manual especially for home nurses and mothers; includes obstetrical nursing, care of infants, emergencies.

Baruch, S. Principles and Practice of Hydrotherapy. (*c*) Wood. 1908. Illus. 550 p. $4.00. General principles and use in specific conditions.

Cooke, Joseph B. Nurses' Handbook of Obstretrics. Lippincott. 1915. Illus. 475 p. $2.00. Physiology and nursing through pregnancy and childbirth; care of infants.

Kellogg, John H. Art of Massage. Good Health. 1902. Illus. $2.25. Explicit, with illustrations showing different movements.

Osler, Wm., and McCrae, Thomas. Modern Medicine. Lea & Febriger, Philadelphia. 1913. 8 vols. Symptoms, progress and therapy of diseases.

Pattee, Alida F. Diet in Disease. The author, White Plains, N. Y. 527 p. Illus. $1.50. General principles of feeding in illness; special diet for specific disorders; caloric value of each recipe.

Pope, Amy E. Anatomy and Physiology for Nurses. Putnam. 1915. 596 p. Illus. $1.75. Especially clear and

well illustrated; facts selected with special reference to intelligent hygiene and care in illness.

Cohen, Solomon Solis, editor. A System of Physiological Therapeutics. Illus. 11 vols. Blakiston. Physiological methods of preventing and treating illnesses, by hydrotherapy, phototherapy, serum-therapy, massage, diet. Special articles by authorities and specialists. 1901–05.

I.*b*. U. S. Dept. of Agri. Pamphlets on Disinfectants and on Patent Medicines.

Adams, Samuel Hopkins. The Great American Fraud. Amer. Med. Assn. Press. 1914. $.15. Reprint of Collier's articles on patent medicines.

Pamphlets issued by American Medical Association Press on patent nostrums and medical quackery.

II. The Nurse. Jamestown, N. Y. $2.00. Practical articles on home nursing.

CHAPTER XXI. BIBLIOGRAPHIES

Books containing references lists relating to the subject they treat are so described. Bibliographies pertaining only to the one subject of the chapter, are listed in each chapter.

Index Medicus. Carnegie Institution, Washington, D. C. $6. yearly. Hygiene, nutrition, therapeutics. Covers American and foreign books and periodicals. Can be consulted in medical, technical and public libraries.

Readers' Guide to Current Literature. Wilson & Co., White Plains, N. Y. $12. per year. Monthly index of articles in the principal monthly and weekly publications, classified by subjects, titles, authors. Can be found in public libraries.

Cumulative Index. Wilson & Co. $6.00 per year. Can be found in public libraries and at book publishers and book sellers. Quarterly announcement of new books, classified by titles and authors.

Olcott, Frances J. The Children's Reading. Houghton. 1912. 338 p. Discussions of children's books; lists of stories; annotated list of children's books, and editions of children's classics, books on science, history, travel, art; purchase list.

Supplementary bibliographies. School of Mothercraft.

A. Family, Home, Marriage, Eugenics. $.25.
B. Parenthood, Maternity, Care of Baby. $.25.
C. Child Hygiene, Feeding, Nutrition, Therapeutics. $.25.
D. Child Study, Education, Play, Stories. $.50.

These are pamphlets uniform in method of annotation with the preceding list, and are brought up to date annually.

Classics and popular science books in cheap editions:

World's Classics. Dutton. Per volume, $.25.
The People's Books. Dodge Publishing Co., N. Y. C. $.25.
Everyman's Library. Dutton. $.35 and $.70.
Macmillan Pocket Series. Macmillan. $.25.
Oxford Series. Oxford University Press, New York City. $.35 and $.60.
Winston Classics. Winston. $.55.
Boy Scout Series. Doubleday.
Riverside Classics. Houghton.
School editions of classics by Ginn, Heath, American Book Co.

INDEX

Accuracy, 42, 86, 201, 207–9, 253, 259–62
Adenoids, 115, 117, 122, 137, 146, 153, 227, 232, 234, 237, 251, 371
Adolescence, 29, 75, 52, 63, 102, 123, 149, 198, 205, 211
Æsthetic interest, development, 48, 59, 61, 240, 248, 252, 258, 286, 329, 336
  training, 151, 195, 247–8, 250, 252, 256, 259, 262, 290, 299, 318, 328–36
Affection, expression of, 214, 256
Age, 47, 159–60, 163–4, 370–5
Air, cold, 108
  fresh, 70, 86, 107–10, 122, 126–7, 153, 157, 339, 362
  bad, 108, 115, 122, 135, 137
  night, 107–8
Airing, child, 87, 90, 108–9
  rooms, 99, 108, 124
Alcohol (drinking) 16, 17, 36–7, 68, 75, 80, 102–3, 123, 146, 164, 175, 235, 371
  as antiseptic, 139, 343, 357, 362
  for skin, 79, 135, 139, 343–58
Altruism, 49, 52, 211–14, 242–3, 249, 257, 262
Anemia, 36, 58, 60, 166, 236–7, 338–41
  treatment, 134, 343
Anger, child, 114, 117, 158
  mother, 74, 104
Animals, 251, 255, 303, 309, 332, 336
  toy, 254, 290–5, 318–23
Antiseptics, 139, 149
Apartment life, for baby, 109, 246
Appetite, 157–8, 338–43, 349
  training, 164–5, 174, 193, 214, 217
Artificial feeding, 100–2, 115, 234, 370, 379
Attention, development, 55–61, 211, 239
  training, 208–9, 213, 216, 256, 278, 283, 291, 302
Auto-education, 203
Auto-intoxication, 168
  causes, 166, 168, 173
  effects, 67, 160, 167, 236

Baby, care, 76–118
  See BATHING; EDUCATION, BEGINNINGS; FEEDING; INFANCY; MORTALITY
Balanced ration, defined, 159
Balancing, 252–3, 272–3
Barley, 104, 107, 189, 346
Bathing, 233
  babies, 94–9
  children, 121–5, 131–4, 178
  equipment, 78–9, 87, 95, 131, 342, 352
  in illness, 132, 337, 343–5, 348, 352, 354, 356
  in maternity, 68–9
  temperatures, 68, 94, 97, 132–3
  times, 87, 133, 343
Baths, air, 98, 121, 123, 133
  bran, 131, 356
  cold, babies, 94, 97
    children, 121, 131–2
    maternity, 68
    effects, 122–3, 131, 202, 344
    in illness, 132, 343, 348, 352, 354
    temperature, 94, 97, 132, 348
    when avoided, 68, 132, 348
  hot, 344–5, 351–3
    in illness, 344–5, 347, 353
  leg, 344–5, 351, 353
  light, 134
  mustard, 345, 352

Baths — *Continued*
  neutral, temperature, 69
  salt, 69, 132–3, 356
  shower, 132
  soda, starch, 356
  sun, 121, 123, 133–4, 343, 353
  sponge, babies, 94, 97
    children, 132–3
    in illness, 348, 352, 354
  tub, babies, 94, 97
    children, 133
    in illness, 344–5, 352, 354
  warm, babies, 94–98
    children, 132–3
    temperature, 69, 94, 133, 353
Bed, baby's, 77, 80, 107–110
  child's, 124, 126, 149
  mother's, 73
  in illness, 338, 344, 346, 348, 359
Bedtime, baby, 110, 112, 233
  children, 120, 125–8, 133–4, 147, 149, 157, 176, 218, 233, 257, 302
Bed-wetting, 127, 128, 145,
Beef juice, food value, 173, 355
Beer, 103, 164, 175
Bible, stories, 221, 263, 300–8.
  teaching, 221, 258
Binders, 65–6, 80–2, 89, 116
Binet tests, 225
Biography, 259, 263, 299, 303, 306, 308, 315
Biology, 1, 5, 34–9, 199
  teaching, 215, 255, 260, 309–11
Birds, 215, 254–5, 260, 322
Birth, care at, 358–60, 379
  reducing pain, 64–5, 67, 75, 92, 358–60
  control, 39
  intervals between, 39, 115, 359
  marks, 74; rate, 39; registration, 377
  child's questions regarding, 147, 150, 257, 310
Bladder, learning control, 87, 91, 127, 129
Blindness, 36, 37, 38, 54, 142
  preventing, 97, 359
Blood, 121–2, 172–4, 233, 341–2, 344, 351
  maternal, 66, 74
  poisoning, preventing, 349–50
  pressure, 52, 58, 60, 232
Books, use of, xiii, 247, 309, 315
  for children, 141, 205, 260, 335
Boric acid, 79, 96–8, 104, 137, 142, 149, 343–4, 348–9
  for eyes, 347, 362
  to make, 362
  saturated solution, 362
Bowels, regulating, 87, 91, 104, 121
Braces, 135, 144
Brain, 48–50, 54, 56, 58, 86, 107, 201, 211
Breast, care, 65, 102, 104, 358, 360
  feeding, 98–106, 360, 370, 378–9
Breathing, 60, 70, 120–2, 134, 143, 147
  observation of, 225, 232, 236–7, 339
Bronchial disease, 54, 56, 58, 60, 108, 234
Broths, 159, 163, 173, 190, 193, 355
Building, 211, 249, 254, 258, 270
Burns, 349, 338
Buttermilk, 67, 186, 355

Caloric needs, to compute, 177
  children, 159, 160, 175, 179–183
  women, 66
Calories, to compute cost of, 26
  definition, 159–60
  100-calorie portions, 173, 177–83, 365–8
Candy, 156, 164–5, 174, 214, 349
Carbohydrates, 168; 160–9, 365–8
Carpentry, 147, 254, 270, 272, 274, 318–23
Castor oil, 345, 361, 362
Cats and dogs, dangers, 76, 110, 156, 342–3
  in play, 148, 293–4, 303
Cellulose, 162, 166, 170–1, 186–7, 355
Cereals, 102, 169–72, 188–9, 192–4
  for babies, 106, 163
Chafing, 92, 98, 148, 356

Chapping, 134, 344
Character, 28, 212, 248
Chest, care, 122, 129, 132
  girth, 151–2, 226, 229, 336, 372
Child, exceptional, 85, 205
  individual, 42, 46, 102, 176–7, 194, 223 ff., 246
Child's room, 126, 268, 332
Child hygiene, 85–119–95, 249–71, 290–1, 320, 336, 363, 370–1
  knowledge of, 4, 37, 117, 153
Child study, 4, 41–2, 41–61, 223, 245
  schedules, 226–245
  tables, 48–61
Child welfare, 6, 11, 12, 13, 16, 18, 29, 31, 39, 40, 63, 215
Children's Bureau, 6
Chills, 121, 134, 338–41, 344, 348, 352
Choking, 346, 350
Christ, 11, 12, 263
Church, 201, 220, 223, 258, 263
Circulation, 133, 159, 168, 170, 232–3, 376
  increasing, 121, 124, 131–2, 138, 145, 351–3
  poor, 120, 135, 153
Circumcision, 54, 99, 111, 117, 128, 147–8
City, 45, 109, 137, 151, 246
Cleaning, 24
  nursery, 98–9
  toys, 86, 99, 290, 342
Cleanliness, in baby care, 86, 102, 251
  child care, 131–49, 251
  food, 156–7, 184–5, 187
  illness, 342–3, 356, 359, 379
  teaching, 251, 253
Climbing, 142–3, 249, 253, 259, 270–3
Clothing, babies, 81–4, 88–94, 111, 113–4
  children, 113, 129–31, 134, 148, 206, 253
  maternity, 63–6
  and food requirements, 159
  laundering, 93
  play, 130, 133, 267, 271
  readymade, 130
  for sick nursing, 356
  tight, 65, 89, 92, 114, 116, 131, 247
  overclothing, 89, 129, 347
Coffee, avoidance, children, 164, 175
  maternity, 67
  stimulant in shock, 350
Cold applications, effects, 351–2
Cold compress, how to use, 352, 354
  uses, 345–50
Colds, causes, 89–90, 108, 122, 129, 160, 166, 236, 344
  care, 132, 342, 344
  disease symptom, 338–41
  effects, 121, 137, 144, 378
  prevention, 99, 100, 111, 115, 131–4
  treatment, 344, 354–5
Colic, causes, 102, 105, 345
  symptoms, 114
  treatment, 116, 344–5
Collecting, educational, 255, 260
  interests, 255, 258, 262–3, 272, 274, 312
Collections, classifying, trains reasoning, 211
Color, interest in, 54, 59, 210, 239–40, 248, 251, 272, 286, 335
  education, 206, 249–58, 290, 301, 319, 322, 327, 331, 335
Comradeship, in marriage, 10–18
  parents and children, 28, 52, 151, 195, 216, 218, 247, 268
Concentration, 239, 245
  training, 49, 208, 249, 256, 277, 281, 302–3
  See also ATTENTION.
Confidence, self, 51, 55, 217, 257, 259, 321
  in marriage, 14–19
  between parents and children, 148–9, 213, 218
Congenital factors, 235
  debility, 54, 115, 378
  infection, 35
  influences, 63–75

Congestion, treatment, 69, 127, 344, 347, 351, 353–4, 360
Conscience, development, 50–2, 61, 243
  cultivating, 217, 262
Consistency, 216–7, 219, 244
Constipation, 232, 234, 236
  causes, 102–3, 166, 359
  effects, 114, 120, 128, 146, 167–8
  prevention, 67, 121
  treatment, 67, 71, 106–7, 113, 116, 145, 170, 338, 345, 355, 357
Construction, 251, 254, 258, 259, 261, 263
  See also Carpentry; Handcrafts.
Continence, 39, 63, 64, 75, 115
Convulsions, causes, 54, 107, 166, 186, 379
  disease symptom, 338–41
  treatment, 345, 353
Cooking, 176, 186–93, 256, 261
Co-operation, 25, 27, 212
  development, 48–61, 243
  in marriage, 10–15, 39
Corsets, 65, 130
Cough, 131, 228, 234, 338–41
  treatment, 346, 354
Counter-irritants, 351, 353–4, 363
  uses, 346–9
Country, 18, 27, 70, 109, 151–2, 247, 371
Courtesy, 49, 51, 147, 195, 204, 212, 216, 245, 257, 277
Cramps, 338, 346, 351
Creative work, values, 208, 210
  in education, 28, 63, 303, 317, 321, 331, 333–4
  See Construction; Handcrafts; Improvising.
Crossness, causes, 105, 114, 250
  treatment, 110, 143, 145
Croup, 56, 58, 115, 131, 152, 378
  treatment, 346
Crying, causes, 114, 346, 350, 251
  development, 53, 112
  feeding when, 158
  treatment, 88, 105–6, 110, 114, 117, 158
Curiosity, 48–61, 146–7, 150, 239, 245, 258, 291
Curvature, 54, 56, 58, 60, 143, 153, 229, 233
  treatment, 86, 116, 143
Cuts, 338, 350

Dancing, 59, 142, 147, 149, 150, 205, 252–3, 256, 259, 272–3, 316
Deafness, 36, 38, 143, 235
  causes, 122, 137, 341
  symptoms, 237
Defects, physical, 17, 54, 56, 58, 60, 120, 153, 235, 241
  causes and prevention, 36, 38, 74, 116–7, 153
  scoring, 226–33
  See Mental defects.
Development, child, 197–200, 202–3, 225, 246
  general principles, 43–61
  recording, 223–45
Dewey, John, 42, 152, 197, 203, 246, 309
Diapers, 80–1, 87, 91–3, 116
  laundering, 93
  diapering, 91–93, 116
Diarrhea, 232, 234, 338, 378–9
  causes, 115, 120, 167
  treatment, 100, 106, 163, 346, 355
Diet, according to age, 163–5
  balanced, 160, 175, 60, 100
  laxative, 67, 103, 171
  toxin-free, 64, 354
  wrong, 106, 155–6, 167, 172, 174–6, 194, 371
  See Feeding; Foods.
Dietaries, 177–83
Digestion, 145, 155, 231, 233, 235
  development, 107, 120, 172, 186–7
  physiology, 157–173, 186–7, 193–4
Diphtheria, 55, 58, 60, 100, 115, 122, 139, 234, 378
  symptoms, 340
Discipline, 16, 217, 244
  training in, 51, 87, 114, 177,

Discipline — *Continued* 147–8, 151, 193, 217, 244, 247
Disease, causes, 115, 120, 137, 165–7
  in child's history, 234
  germs. See DISEASES, COMMUNICABLE; INFECTION.
Diseases, communicable, 115, 234, 339–41
  heredity, 36–38, 234
  mortality, 54, 56, 58, 60, 115
  nursing in, 356
  See INFECTION.
Dishes, for children's use, 192, 193
  making toy, 318, 327
  disinfecting, 362.
Dishwashing, 22, 24
Disinfectants, 361–2
Disinfecting, 93, 139, 149, 359, 362
Doctor. See PHYSICIAN.
Doing, feeling and thinking, 204, 317
Doll-house, 256, 294, 296, 323–4
Dolls, at bed time, 149
  cultural values, 282, 288, 312
  interest in, 263, 270–3, 287–9, 293–7, 322, 336
  making, 254, 318, 321–2, 328
  selecting, 287–91, 293–7
Domestic efficiency, 15–21, 216
Douching, nasal, 137, 343, 344, 346
  vaginal, 69
Dramatization, education through, 253, 266, 278, 282, 302
  educational values, 208, 210, 334
  interest in, 49, 50, 58, 240, 272, 302
Drawing, interest in, 251, 258, 262, 271, 272
  materials for, 262, 319, 332
  teaching, 254, 262, 318, 333–4
Dreaming, 145, 157, 200
Dressing self, 124, 206, 231, 253
Drowning, 60, 337
Dust, 24, 80, 99, 109, 111, 115, 137, 156, 184, 338, 342–3

Earache, 122, 137, 234, 338–40
  treatment, 346, 353–4
Ears, 228, 233
  care, 96, 98, 131, 137
  disorders, 56, 58, 153
  discharges, 343, 362
Eating, rapidly, 156, 194
  when not, 158–9, 194, 214, 354
  overeating, (mother) 66–7, 75, 102–3, 359
Economy, 20 ff.
  in education, 197, 200–5, 208–9, 215–6, 219
Eczema, 82, 131, 228, 234, 347
Education, defined, 196–7, 222, 246
  function, 197
  purposes, 196–8, 246
  scope, 247–8
  for living, 4, 7, 28, 86–7, 130, 195–222, 247
Education, by apparatus, 222
  pictures, 212, 322
  plays and games, 197, 203, 206–9, 212–4, 264–84
  stories, 207–13, 221, 299–311, 314–5
  toys, 203, 206, 215, 285–98
Education, (bases) biology, 45–7, 199–203
  child study, 197, 223, 246
Education, 45, 86–7, 91, 110, 114, 119, 196–9, 201 205–8, 211, 214, 219–20, 248–51, 269–70, 278–80, 293–4, 304–5, 309, 330, 332
Education, as development, 96–8, 203
  through books, 198, 205, 309
  by trial and error, 197
Education, through example, 196, 201, 206, 210–1, 214, 220, 249, 253, 256–8, 330, 332
  through experience, 205, 217, 246–7, 249–63
  through physical regimen, 85–6, 101, 105, 111, 114, 119, 123, 126, 129, 134, 194–5, 206, 210, 214–5, 249–53
Education, home environment for. See FAMILY; HOME.
  mother's responsibility in. See MOTHER.

Education — *Continued*
  teacher's part in, 196, 198, 203–5, 207, 222, 265–6
Education, methods, 196–222
  natural, 203
  race methods, 197
Education, physical conditions for, 119, 122, 139, 141, 146–7, 152, 155, 199, 203, 206
  relations of environment to, 28, 196–7, 199, 202–3, 206–8, 219–20, 246–7, 330, 332, 335
  See INTERESTS.
Educators, 152, 196, 222
Eggs, cooking, 189–90
  in diet, 67, 162–4, 194, 355–6
  values, 27, 162, 168–9, 172, 178, 180
Electricity, uses, 23, 188, 256, 261, 263
Elimination, 64, 68, 75, 160–1, 170, 172, 231–2, 344–6, 350–4
  See BREATHING; CONSTIPATION.
Embryo, development, 43–4, 74
Embryology defined, 74
Emergencies, 349–50
Emetics, 346–7, 361
Emotions, 242, 244
  development, 43–61, 112, 210
  physical effects, 75, 104, 145, 155, 158, 160, 174
  and religion, 196, 214, 219
  expression, 212–4
  training, 49, 101, 114, 117, 147–8, 151, 196, 203, 209–15, 249, 256–7, 285–9, 292
Enema, 107, 337, 345, 352
Environment, educative, 247
  for meals, 158, 192, 195
  influence of, 35, 45, 47, 53, 137, 151, 196, 202–3, 207, 219, 220, 247
  natural, 28, 151, 208, 246–7, 312
  selecting and supplying, 42, 199, 206, 219, 246, 247–61, 268–74, 309, 312, 330, 332, 335, 370–1
  utilizing in education, 197, 247–61, 313–4, 318–9
Eruptions, 226, 228, 236, 338, 340–1, 356–7
Eugenics, 32, 29–40, 150–1, 214–5
Examinations, dental, 139, 154, 233
  eyes, 140–1, 147, 154, 233
  health, 117, 223–235, 342
  school, 152, 197
Excitement, 64, 86, 112, 116, 147, 149, 158, 251
Exercise, 63, 123, 144–5, 162
  time for, 46, 120, 143–4, 200
Exercises, for babies, 96–7
  breathing, 71
  children, 144–5
  circulation, 122, 144, 162
  constipation, 73, 97, 144
  curvature, 144
  feet, 135
  mothers, 69–73
  skin, 133
  trunk, 71
Experimenting, interest in, 58, 50, 241, 248, 251, 258, 269–72
  utilizing, 63, 198, 211, 249, 256, 259, 261
Exploring, educational use, 255, 312
  interest in, 248, 251, 270, 272, 274
Eyes, care, babies, 36–7, 96, 98
  children, 134, 139–142, 250
  in maternity, 74
  complications in disease, 341
  defects, 140, 153, 227, 237
  development, 50, 54, 56, 48, 60, 121, 139–40
  discharges, 97, 338, 343, 362
  examination, 140, 141, 147, 154, 227, 233
  infection, 36, 37, 142, 338
  inflamed, treatment, 338, 344, 347
  symptoms in disease, 338–41
  strain, 54, 56, 58, 104–1, 143, 146

Facts, learning, 198, 205, 209–10, 246, 315
Fairhope School, 316
Falling, 338, 350

Family, 6, 10–19
  environment for education, 197, 247
  teaching significance of, 215, 257
Father, 2, 11, 13, 28, 63, 150, 153, 155, 218, 234–5
Fathercraft, 5–6, 9, 117
Fatherhood, 7, 29–40, 150
  teaching responsibility for, 150–1, 257, 310
Fatigue, children, 50–1, 58, 146–8, 158, 230, 251, 259, 372
  mother, 25, 36–7, 64, 69, 71–2, 102
Fats, 160, 165–9
  cooking, 165, 176, 186, 190, 193, 365–8
Fear, 48–51, 145–6, 201, 230, 250
  preventing and treatment, 148, 213, 250, 257
  mother's, 74
Feeding, and bath, 87, 120
  babies, 86–88, 100–7, 115–6, 118, 370
  children, 120, 124, 155–195, 234, 249
  in maternity, 66–8, 102–4, 359
  in illness, 354–6
  over, 89, 105, 116, 123, 151, 160, 166–7, 194, 347
  regularity, 86–88, 105, 120, 124, 157
  wrong, effects, 105, 115, 155, 165–7
Feet, 230, 338
  care, 90, 97, 122, 129, 135
  defects, 90, 116, 230
  cold, 89, 122, 135, 353
Fever, symptom of illness, 338–41
  treatment, 348, 354
Finger nails, 134, 230, 340, 342
Finger plays, 268, 278–80
Fire, what to do, 349–50
Fireless cooker, 24, 188
Firmness, 193–4, 214, 216–18, 337
First Aid, 349–50
Fomentations, hot, effect, 351
  how to apply, 353
  uses, 343, 345–7, 349–50, 354, 360
Food composition, 168–173, 365–9
  values, 159–60, 173, 365–9
Foods, 101, 156, 195
  injurious, 164–5
Foreign bodies in ear, eye, nose, throat, 350
Freedom, baby's, 86, 89, 90, 108, 111, 249
  children, physical, 129, 130, 147, 153, 174, 193, 194, 266
  children, psychological, 204, 206, 210, 213, 215, 220, 262
  See also INTEREST; SELF-ACTIVITY.
Froebel, xii, 4, 41, 42, 196, 197, 203, 222, 223, 285, 286, 309, 330, 333
Fruit juices, 159, 169–70, 348, 355
  for babies, 67–8, 87, 106–7
  children, 124, 158, 162–3
Furniture, 76–80, 91, 111, 143, 192, 326

Games, 112, 275, 284
  education through, 206–7, 209, 212–4, 275–84, 316
  educational, 209, 278–84
Genetics, 33–5
Genital organs, 230, 232
  care of, 92–3, 98, 148–9
Geography, 212, 255, 258, 260, 263, 310–13
Germ cells, 33–39, 44
Group play, 50, 52, 59, 212, 275–6, 218–4
Growth, 45, 43–61
  factors influencing, 100, 151, 168, 370–3
  tables, 118, 373–5
Gruel, 159, 189, 355

Habit formation, age, 198–200, 207, 219
  method, 219, 253
  breaking, 219
Habits, 63, 199, 207
  effects, 155, 214
  training, 193–5, 198, 200, 219, 337
Hair, 73, 135–6, 343

- Hall, G. Stanley, 1, 29, 42, 152, 197, 221, 223, 246, 287, 288, 291, 316, 317, 333
- Handcrafts, 251–274, 317–328
  - hygiene, 140–1, 251, 259, 317, 320
  - interests, 251–2, 258, 263, 270, 272, 274
  - materials, 254–5, 261–2, 318–20
- Handkerchiefs, 342, 362
- Hands, care, 134
  - disinfecting, 93, 149, 343, 349, 356
    - method, 362
  - washing, 93, 95, 99, 104, 124–5, 134, 149, 157, 187, 342
- Head, 96–7, 226–7
- Headache, 67–8, 157, 166, 172, 237, 338, 340–1, 353
- Health, before intellectual education, 196, 205
  - and food, 155, 157–8, 160–2, 165–8, 172–4
  - school, 152–3
  - scoring, 226–37
  - See Child hygiene.
- Health, good, bases, 120
  - and discipline, 219
  - for marriage, 17
  - for parenthood, 37, 39, 63
- Heart, 58, 60, 120, 128, 161, 232, 338
  - in illness, 340, 348
- Heartburn, 348, 357
- Heat, applications, effects, 351–2
- Height, 60, 101, 151, 159, 177, 226, 236, 370–5
  - tables, 373–5
- Hemorrhage, in maternity, 357
- Hemorrhoids, 357
- Heredity, 2, 17, 29–47, 34–5; 63, 74, 146, 234–5, 370
- History, child's, scoring, 234–5
- History, interest in, 240, 258, 263
  - teaching, 255, 260, 299, 306, 309, 314–5
- Holt, L. Emmett, 372, 376
- Home, environment for education, 197, 206, 246–7, 268, 332
  - location, 18, 27
  - responsibility, 2, 3, 7, 119, 152–3, 155, 223
  - See Home-making; Parents, responsibility.
- Home-making, 10–32
  - training for, 4, 7, 28–9, 62–3, 150, 257
- Hotwater bag, method, 353
  - uses, 345, 347–8, 350–3
- Housekeeping, 10 ff., 253, 259
- Housework, 20 ff., 70, 156–7, 184–192
- Humidity, 25, 89, 108, 115, 122, 137
- Humor, development, 55, 57, 59, 61, 240
  - training, 16, 18, 143, 158, 213, 335
- Hygiene. See Child Hygiene.

- Ideals, of American men, 15
  - child's, developing, 196
  - development, 55–61
  - early implanting, 196, 211–2, 214–5, 248
  - (false) of education, 205
  - of marriage, 11–19, 149–51, 215
  - See Inspiration; Moral; Religion.
- Illnesses, care in, 337–63
  - chief, 54, 56, 58, 60, 115–6
  - causes, 120, 155, 166–7, 172
  - history, 234–5, 371
- Imagination, development, 55–61, 240, 269, 285, 303, 314
  - training, 210, 245, 247, 254, 262, 265, 272, 277, 279, 282, 289, 294, 296, 299, 303, 320, 322, 333–4
- Imitation, development, 55–61, 240, 271
  - learning by, 207, 211, 220, 286, 302
  - through games, 277–8, 282–4
  - utilizing in education, 249–50, 297
- Impudence, 212, 218
- Impulse, 151, 200, 204, 212–15, 217

Income, family, 11, 16–20, 32, 37, 156
Indigestion, causes, 103–5, 115, 158–60, 166–7, 174, 186–7, 190
  effects, 128, 236, 347, 378
  extent, 54, 56, 58, 60
Individuality, 13, 196, 205, 217
  See Child, individual; Temperament.
Infancy,
  characteristics, 48–9, 54–7
  meaning of, 11–13, 119
Infant mortality. See Mortality.
Infection, how conveyed, 15, 35, 99, 122, 342–3
  precautions in, 99, 139, 149, 338, 343, 356, 362
  prevention, 100, 122–3, 130, 134, 142, 149, 153, 155, 160, 192, 342, 349–50, 359
Information, not education, 196, 198, 208, 246
Influenza, 120, 139, 339, 378
  See Colds.
Inhibitions, 47–52, 200, 203–4, 213, 215
Initiative, development, 19, 50, 238–9
  cultivating, 204–5, 208, 245, 277–8, 289, 302, 316
Inspiration, in home, 10, 17, 18
  in childhood, 148, 196, 220–2
Instruction, 198
Intensive development, 47, 205
Interest, abnormal, treatment, 147
  and education, 203; 46, 147, 197–201, 205, 208–9, 246–7, 256, 260, 265–6, 276, 289, 300, 311, 330–1, 333, 335
  clues to child's, 200–1, 203–4, 303
  diverting, 147, 203, 205, 208
  early intellectual, 205
  forcing, effect of, 205
  race vs. individual, 11, 29–40, 149–51
Interests, according to age period, babyhood, 48, 54–7, 248, 269–70, 278, 285, 291, 293–4, 302, 304–5, 329
  childhood, (2–6 yrs.) 48–9, 56–9, 251, 270–3, 280–3, 294–7, 303, 305–7
  (6–9 yrs.) 50, 58–9, 258, 274–4, 283–4, 297–8, 307–8
  youth, (9–12 yrs.) 51, 60, 61, 263
  adolescence, (12–18 yrs.) 52, 60, 61
Invention, 59, 241
  cultivating, 247, 277, 282–4, 289, 316–7
Investigation, interest in, 48–9, 241, 248, 269–70, 272
  cultivating, 249, 289, 292
Irregularity, effects, 102, 105, 114–6, 146, 157, 166–7, 210, 219
Irritability, 67, 105, 110, 139, 145, 147, 202, 230, 237
Irritation, 92, 98, 122, 147–8, 151, 160, 164, 172–4, 251, 345, 349
  treatment, 353
Itching, treatment, 340, 358

Johnson, Mrs. Marietta, 316
Judgment, 63, 210–1, 240
Jumping, interest, 253, 270–2

Kidneys, 120–1, 231, 233, 235
Kidney disease, causes, 160, 164, 167, 172, 340–1
  extent, 58, 60, 123
Kiss, conveys disease germs, 342

Labor saving, 22 ff.
Language, development, 44–61, 207, 241, 257, 263, 299
  training, 53, 195, 207, 250, 252–4, 257, 259, 260, 288, 299
Laundering, 25, 93–4, 362
Law, respect for, 196, 204, 211–12, 216–7, 251
  sense of, 43–61
    cultivating, 211, 276, 309
Laxative, foods, 162, 171
  diet, 67, 121, 147, 175, 177
  drugs, 362
  when to give, 344–6, 354

Lefthandedness, 201, 230
Lies, 49, 210, 240, 243, 257
Life, beginning of, 74
  increasing length, 119, 123, 154
  quality, 197, 205
Life Extension Institute, 119, 372
Light, uses, 134, 348–54
Lighting, hygiene, 140–1

Malnutrition, 116, 153, 236–7, 338–9, 340, 341
  treatment, 343, 356
Manners, 194–5, 243, 247, 253, 266
Marriage, 2–3, 11–19, 31–38, 215
Massage, 74, 95, 98, 127, 132, 345, 347, 349, 359, 360
Masturbation causes, 92, 98, 146–7
  effects, 145
  preventing, 148–150
  treatment, 117, 145
Maternity, care, 62–84
Mathematics, teaching, 261, 263, 315–6
Maturity, 43–4
  of sex, 151, 371
Meal time,
  children, 124–7, 177–84
  for mothers, 68
Meals, 157, 192–5, 214, 218, 343
Measles, 100, 115, 122, 234, 378
  effects, 54, 56, 58, 153, 240
Measuring, education in, 253, 254, 261, 266–7
  interest in, 252, 272, 274, 316
Meat, 149, 168–9, 173
  in child's diet, 149, 161, 164, 172–4
  in illness, 349, 355
  in mother's diet, 67
Medicine, 80, 347, 361–3
Memory, development of, 43–61, 145, 147, 240, 275
  training, 112, 209–10, 249, 253
Meningitis, 54, 56, 341
Mental activity, 239
  overemphasis, 152, 246, 248
  rate, 213, 263
  defects, 36, 38, 145–6, 239–44, 371
Militarism, 32, 212, 255, 286, 314
Military toys, 286, 290
Milk, boiled, 187, 355
  bottled, 184
  certified, 184–5
  clean, 152, 157, 185
  condensed, 101, 161, 185
  grades, 185
  loose, 185
  pasteurized, 184–6
  skimmed, 186
  sour, 185
  sterilized, 185
  raw, 355
  whey, 186, 355
Milk, care, 157, 184–5
  cooking, 185, 187, 190
  pasteurizing, 187
  serving, 166, 175, 192
Milk, composition and values, 27, 162, 168–73, 178
  factors in, 184
Milk in diet,
  child's, 159, 163, 166, 168–73, 185–6
  mother's, 67–8, 102
  in illness, 355–6
  digestion of, 159, 168, 185
Milk, mother's, 101–104, 168
Minerals (food), 161, 167–170, 172–3, 178–84
  importance, 27, 64–7, 103, 158, 166–7, 355
  daily requirement, 161
  tables, food composition, 365–8
Miscarriage, causes, 36, 68, 69, 378
Mischief, 49, 219, 239
Modeling, educational values, 208, 210
  interest in, 251, 271–2, 274
  materials for, 320
  education, 254, 256, 261, 318
Modesty, training, 50, 129, 150, 214, 257
Montessori, apparatus, 142, 222, 330
  auto-education, 203–4
  statement of liberty, 204, 222
Moral development, 48–61, 202, 242–244, 252

Moral development — *Continued*
  training and education, 39, 49–52, 202, 211–19, 245, 248, 251–2, 256–7, 262, 267, 292, 299, 300, 329, 335
Moral influences, 196, 202, 246–7, 291
Mortality, children,
  causes, 54, 56, 58, 60, 85, 115, 154, 155, 343, 378
  prevention, 33, 40, 117, 343, 379
  statistics, 377–8
  in maternity, 379
Mother, heredity from, 234–5
  teaching respect for, 218
Mothers, consequences of ignorance in, 115, 117, 155
Mother's, assistant, 4, 5, 86, 250, 337, 342
  responsibility for children's education, 4, 194–6, 218, 309
Mothers', International Congress, 7
Mothercraft, defined, xii
  School of, xii
Motherhood, hygiene, 62–84
  age for, 39
  preparation for, vii, ix, xii, 1–9, 18, 62–3, 215, 257
  teaching respect for, 29, 145, 150, 196, 215, 218
  unwelcome, 39, 40
Mothering, 63
Motor development, 43–61, 112, 145, 204, 231, 248–9, 251–2, 258, 233–4, 269–72, 288, 291, 294, 329
  defects, 145–6, 231
  See MUSCLES, FUNDAMENTAL.
Motor education and training, 28, 133, 142, 195, 198, 205–6, 249–50, 252–6, 285–98, 269–74, 277–83, 317, 321
Mouth hygiene, babies, 98, 99, 104
  child, 124, 137–9, 297, 342–3
  in illness, 356–7
  in maternity, 74, 358
Moving pictures, 140, 146, 151, 371
Muscles, 199, 229
  fundamental and accessory,
    development, 46, 56, 58, 60
    in education, 147, 206, 208, 251, 286, 318, 320
Music, interest in, 239–40, 329–331, 248, 252
  education, 247, 249–50, 252, 256, 259, 266, 316, 329–331, 335–6
  in home, 15, 19, 330
  therapeutic use, 147, 329
  See RHYTHM; SINGING.
Musical toys, 250, 252, 256, 293–7
Mustard, bath, 352, 345
  plaster, 363
  for earache, 363
  in diet, 164, 175

Nail-biting, 145, 231, 233, 237
Nap, 73, 88, 90, 124, 128, 213, 232
Nature, environment, 247
Nature study, 240, 251, 255, 258, 260, 263, 309–10
Nausea, causes, 157, 338, 340–1
  treatment, 347
  in maternity, 67, 68, 357
Navel, 54, 82, 89, 94, 89, 230
Nerves, afferent, 199
  centers, 201–2
  development, 54, 56, 58, 60, 86, 146, 200
  efferent, 199, 200, 202
  food for, 155, 160, 161
  hygiene, 114, 120
  scoring, 230–1
  sensory and motor, 199, 200, 202
Nervous, child, 126, 134, 173, 205, 213, 260
  energy, storing (mother), 18, 63, 102; (child), 123, 155, 161
  system, development, 199–203, 219
Nervousness, causes, 67, 112, 116, 122, 139, 146, 160, 164, 167, 172, 173, 174, 341, 320
  development, 54, 56, 60
  effects (mother's), 102, 104
    (child's), 123, 128

Nervousness — *Continued*
  extent, 54, 56, 58, 60, 152
  prevention, 25, 86, 145–8
  symptoms, 145, 230–1, 237
  treatment, 25, 69, 70, 127, 143, 147–8, 353
Night regimen, 89–90, 105, 109, 118, 127, 129
Nose, 227, 232, 237
  care (baby), 96; (child), 122, 136–7
  how to blow, 136
  discharges, 338–42, 362
Nursery, 76, 98–9, 108
  furnishing, 75–80
Nursing, home, 337–63
  in maternity, 357–60
  of baby, 100–6, 115, 234, 358–60, 379
Nutrition, 120, 146, 219, 231, 236–7, 219

Obedience, development, 48–61
  cultivating, 196, 216–18, 251, 256, 337
Observation, development, 48–61
  training, 208–9, 255, 262, 277–8, 281, 283
  utilizing, 198, 217, 255, 261
Oil rub, 87, 94, 131–4, 356, 358
Orange juice, 106, 163, 169, 171, 175, 179
Orderliness, 28, 99, 211
  training in, 130, 194, 215, 245, 253
  sense of, development, 48, 61, 243
Overwork, 70, 115, 206

Pacifiers, 80, 227, 234, 342
Painting, intellectual values, 208, 210
  hygiene 254, 318, 320
  interest in, 240, 262, 271, 272, 274, 302
  materials, 254, 319–20
  teaching, 254, 262, 318
Paralysis, 341
Paregoric, 80
Parental love, (not compensate for ignorance), 123
Parenthood, 29–40
  age for, 37, 39
  See EUGENICS; FATHER; HEREDITY; HOME; MOTHER
Parents, 29–40, 41
  responsibilities, 16, 29–40, 45, 117, 153, 155, 246
Parties, 146, 149, 267
Pasteurizing, 342
  method, 187
Patent baby foods, 80, 101, 161, 234
Patent medicines, 68, 80, 103, 346, 363
Peace, international, 287, 312
Pedagogy, 198, 208
Pediatrics, 3, 6, 62
Personality, 5, 7, 247
  study of, 237–44
Physical education, 87, 119, 247, 251, 255
Physical measurements, 151, 118, 226, 373–5
Physician, 14, 38, 63–5, 71–2, 85, 93, 97–8, 102–3, 106–7, 117, 128, 135, 142, 144–5, 147–9, 154, 165–6, 174, 232–3, 339, 344, 346, 350, 359, 363
  when to summon, 337–8, 343, 349
Physiology, 43–75, 86–116, 120–150, 157–195, 199–203
Pictures, 210, 247, 249, 256, 268
  children's interest in, 240, 248, 262, 272
  for children, 250, 262, 332, 335
  making, 254, 304, 333–4
Play, for baby, 111–2, 248–9
  with baby, 86, 110, 112
  defined, 203, 264–5
  education through, 264–74
  equipment, 130, 133
  interests, 142, 248–9, 251, 258, 268
  See GAMES; TOYS.
Pneumonia, 339; 89, 101, 108, 115, 120, 131, 134
  extent, 54, 56, 58, 60, 153, 378
Poisoning, prevention, 347, 379
Posture, 73, 143, 226, 236
  sitting, 111, 143
  standing, 25, 143–5

Poultices, 339, 343
Powder, use of, 92, 98, 138, 358
  formulas, 79, 358
Prayers,
  child, 214, 220, 258
  parents, 39, 258
Precocity, 47, 205, 239
Prenatal, development, 43–4
  hygiene, 62–84, 357–60, 379
  influences, 33–36, 63, 74–5, 138, 235
Prickly heat, 347–8, 356
Primitive life, 255, 258, 260, 262, 312
Prohibitions, 216, 251
Promptness, 213, 215, 216, 218, 253, 256
Protein, 168; 160, 166–8, 172–5, 179–84, 365–8
Prunes, 169, 171, 175, 188, 355
  juice, 88, 106, 163
  pulp, 163, 188
Psychology, child, 128, 147, 151, 199–222, 251, 258, 263, 264–67, 275–77
  of development, 43–61, 225, 237–44
  genetic, 42
  of infancy, 85, 101, 105, 110, 112, 114, 117, 248–9
Pulse, 232, 376
Punishment, baby, 117, 212
  child, 127–8, 146, 218, 257
  consistency, 216
  natural forms, 216–7
Purins, 160, 166–7, 172, 175
  free diet, 160, 171, 348, 354–5

Quarreling, 212, 218, 243, 257
Questions, child's, index of interests, 224, 241
  regarding biology of life, 150, 215, 258, 210
  regarding theology, 221, 257

Reaction time, 202, 213, 216, 239
Reading, age for, 51, 53, 141, 152, 207, 260, 263, 316
  hygiene in, 140–3, 260
  physical strain, 140, 207, 254
Reasoning, development, 48–61, 240
  training, 210–11, 214, 250, 309
  utilizing in education, 198, 213
Recapitulation, 44, 200
Reflex arc, 199, 213
Reflexes, 132, 143, 351
Regularity, babies, 86–8, 102, 105, 249–50
  children, 123–4, 126–7, 147, 157, 176, 211, 214, 233
  training in, 49, 55, 107, 214, 251
Relaxation, 128, 147
  means to, 127–8, 143, 147, 213, 338
Religion, development, 49, 52, 59, 61, 220, 244, 258
  education in, 49, 52, 149, 151, 195–6, 202, 214, 219–23, 257, 258, 262–3
Repression, 146–7, 152–3, 200, 202, 204
Resistance, developing, 120 ff., 344
  to disease germs, 123, 131, 134
  low, 160, 172, 343
Respect, development, 243
  for authority, 49, 114, 211, 216–7, 220, 251, 258, 276
  father, 218, 220
  mother, 218, 220
  parenthood and marriage, 149–50, 215, 310
  property, 211, 218
  workers, 216, 313
  See SELF-RESPECT.
Respiration, rate, 376
  See BREATHING.
Responsibility, training in, 28–9, 51–2, 130, 150, 211–2, 214, 218, 259, 292, 313
Retardation, 202, 205, 239–44, 271
Rewards, 217
Rheumatism, 58, 60, 160, 167, 172, 234, 348
Rhyme, 209, 239
Rhythm, sense of development, 59, 239–40, 248, 252, 269, 303, 329
  cultivating, 55, 112, 128, 206,

Rhythm — *Continued*
249–50, 253, 256, 259, 278, 302
uses, 127, 147, 209, 329
Rhythmic exercises, 202, 213, 250, 269
Rickets, 54, 101, 116, 167, 234, 236
Ridicule, 256, 260
Rocking, 78, 110, 111, 116, 127
Rote learning, 51, 209, 261, 263
Rupture, 89, 98, 116, 232, 230

Salt, normal solution, 362
uses, 343–5, 347–8, 362
Sanitation, 86, 87, 93, 98–100, 108–110, 127, 137, 139, 142, 152, 156–7, 184–7, 192, 251, 342–3, 362–3
Scarlet fever, 122, 153, 234, 340
mortality, 56, 58, 100, 378
School, 2, 3, 4, 7, 8, 28, 124, 223
age for entering, 141, 152, 208
and health, 146, 152–3, 194
dances, 149
Science, teaching, 248, 255–6, 260–1, 309–13
Scolding, 127, 142, 217
Scurf on head, 96, 97, 135, 226
Scurvy, 56, 101, 116, 162, 167, 234, 237
Self-activity, 199, 203–4, 208, 220, 241, 245, 264–7
clue to interests, 203–4, 224, 240
See Freedom; Interest.
Self-consciousness, 429, 224, 256, 260
Self-control, developing sense of, 43–61, 231
lack of, 12, 16, 145, 146, 151, 195
need of, 17, 39, 37, 86, 123, 151
training in, 29, 31, 63, 86, 114, 143, 148, 212, 213, 245, 251, 256
Self-indulgence, 114–5, 117, 123, 146, 151
Selfishness, 16, 20, 218, 242, 243
Self-reliance, development of, 20, 43–61, 231, 239
training in, 20, 63, 114, 128, 130, 142, 143, 148, 195, 211, 245, 249, 253, 320
Sense organs, development, 43–61, 200–1, 227–8, 239–40
hygiene, 137, 153, 139–42, 146–7
Sense training, 201, 205–6, 249–51, 252–3, 258–9, 269–70, 272–3, 277, 281, 284
See Color; Rhythm.
Sewing, 83–4, 140–1, 262, 271, 274
Sex determination, 74
Sex, development, 43–61, 150–1
influence on growth, 370–75
influences on maturity, 371
education, 29, 149–51, 214–5, 310
hygiene, 39, 92–4, 148–151
instinct, sublimation, 13–4, 19, 33, 39, 151
perversion, 17, 31, 37–8, 150
Shock, avoiding in cold bath, 131
treatment, 346, 349, 350
Shoes, baby, 82, 90, 116
child, 128–30, 135
in maternity, 65
Sight, 54–61, 11, 206
Simplicity, 21–8
for children, 129, 131, 158, 165, 174, 244, 256, 267
Singing, 18, 127, 147
education in, 249–50, 252, 277, 329–30
games, 272, 282–3
Sitting, babies, 55, 111–2, 116, 231
children, 143, 152, 226, 320
Skin, 228; 148
care, babies, 92, 97–8
children, 129, 131–4
maternity, 64, 68, 358
training, 121, 131, 133
Sleep, 73, 86, 88, 107–11, 123–6, 130, 149, 157, 232, 237
disturbed, 69, 111, 127–8, 145, 157, 237, 349
Sleeping out-of-doors, 70, 107, 109–110, 126, 129, 147
bag, 90, 109, 129
porch, 70, 126
Slivers, 351

Smallpox, 378
Soap, for babies, 79, 97, 98
  children, 131, 133
  diapers, 93
  disinfection, 343, 362
  woolens, 93
Social, development, 54–61, 242–3
  training, 195, 212–17, 220, 248, 253, 257, 266, 275–6
Songs, 207, 240, 249, 256, 272, 335
Soothing syrups, 80, 114, 363
Speech, 241
  development, 43–61
  defects, 56, 58, 201, 205, 241
  See LANGUAGE.
Sponge, 80, 94
Starch, 166–9, 186, 193
Statistics, 153–5, 387–9
Sterilized foods, 101, 161, 185
Sterilizing, method, 363
  baby clothes, 79, 93
  dried fruits, 192
  milk bottles, 184
  toothbrushes, 139
  wash cloths, 131
Stimulants, to be avoided, 123, 149, 151, 217, 371
  desire for, 155
  foods, 164, 173–4, 371
  in illness, 350–1, 355
Stimulation, mental, 45, 47, 86, 110, 205–6
  physical, of heat, 351
Stomach, ache, 349
  gas, 345
  digestion, 167–8, 174
  scoring, 230–1
  sour, 348, 357
Stools, abnormal, 107, 232, 338
  regularity, 86–88, 107
  in disease, 342, 362
Stories and story-telling, 252–308, 314–5, 127, 146–8, 203, 210–11, 224
Stubbornness, 214, 216, 217
Subconscious mind, 128, 202
Sucking, 117, 227
Sugar, 101, 114, 149, 188, 165–75, 193
Suggestion, to the subconscious mind, 128
  use of, 128, 208, 216, 302
Suggestibility, 48, 128, 200, 247
Summer, baby's regimen, 82, 90, 94, 98, 108
  children, 129, 132–3, 177
Sunburn, 134, 348
Sunshine, 86, 93, 109–10, 134, 153, 362
Suppository, 91, 107, 345
Sympathy, 10, 16, 28, 212, 218, 220, 244, 247, 268
  with child nature, 222
Syphilis, 35–8, 54, 115, 233, 341

Tantrums, 117, 145, 147–8, 213, 237
Taste, 158, 174, 193, 206
Teasing children, 112, 116, 146, 251
  child's, 51, 216, 218, 257
Teeth, 120, 228
  care, 128
  decay, 139, 146, 162, 174
  defects, 54, 56, 58, 60, 139, 153
  development, 54, 56, 58, 60, 138
  examination, 139, 154
  food for sound, 161–2, 174
  in maternity, 73, 358
Temper, 55, 143, 145, 147, 213, 218, 237, 251
Temperature, body, normal, 376
  learning to take, 337
  response to changes, 121
Temperature, food, 192
  water, 106
Temperature, outdoors, for play, 133–4
  for sleeping, 127
  for taking outdoors, 89, 108
Temperature, room, 232
  bathroom, 131
  nursery, 98, 108
  room, 25, 70, 89, 121, 127, 137, 192
  sickroom, 338–9, 341
  to reduce, 350
Theater, 146, 151, 247, 371
Thinking, feeling and doing, 197, 204, 248
Thrift, 16, 25, 49, 243
  teaching, 215, 292

Throat, care, 122, 343, 356
  sore, 122, 137, 348, 354–5
Thrush, 104
Tickling, effects, 112, 116, 146
Time, sense of, 239
  teaching, 260, 314
Tonsillitis, 122, 137, 146, 153, 340
Tonsils, 115, 122, 137, 146, 153, 234
Toothache, 349
Toothbrush, 138–9, 357
  how to brush, 138, 342
Tossing babies, effect, 112, 116, 146
Toys, 285–298, 317–328
  at bedtime, 127
  care of, 86, 218, 234, 253, 342
  education through, 249–50, 252, 256, 261–2, 285–98
  making, 254, 261, 317–28
  See Doll.
Tuberculosis, hereditary, bar to marriage, 37–8
  congenital infection, 35, 37, 233
  diet, 356
  extent, 56, 58, 50, 123, 153, 378
  causes, 123
  history, 234, 235
  prevention, 131, 134
  precautions in, 139, 339
  symptoms, 339

Unity of child's life, 85, 197, 204
Uric acid, 167, 171–2
Urinating, teaching control, 87–8, 91, 127, 231
Urine, 91–2, 148, 170, 231, 338, 358, 362, 379

Varicose veins, 65, 73, 357
Vegetables, 161–2, 168–72
  cooking, 170, 187, 190
  in diet, 162–4, 193, 355
Venereal diseases, 35–8, 115, 233, 341, 343
Ventilation, 152, 233
  nursery, 98–9, 108, 123, 127
  room, 25, 70, 122, 192
  sickroom, 339, 344, 348, 356
Vitality, 63, 151, 226–237
  increasing, 119–154
  low, 153, 165, 172, 236–7
Vitamines, 161; 27, 100–1, 161, 175, 177, 179, 185
Voice, 52, 241, 250, 254, 259, 335–6
Vomiting, 105, 338–42, 362

Waking, 111, 118, 128, 250
Walking, 99, 112, 205, 123, 252–3, 270–3
  in maternity, 69–70
Water, 162, 166, 343–4, 348, 354
  sterilising, 363
Water drinking, 68, 88, 104, 121, 124–5, 162, 170, 360
Weaning, 103, 106, 234
Weather, adaptation to, 129, 159, 175, 184
  cool, 87, 90, 94, 99, 108, 110, 127, 129, 131–4, 137
  warm, 90, 94, 98, 108, 177
Weighing, 78, 87–8, 104, 224
Weight, 44, 60, 104, 151, 159, 177, 226, 236–7, 338–9, 343, 370–375
  taking, 87
  Tables, 118, 373–5
Whims, 114, 193–4, 203, 213, 217
Whooping cough, 54, 100, 115, 120, 234, 340, 378
Will, 55–61, 155, 200, 244
  breaking child's, 214, 217
  training, 151, 211, 213, 215, 222, 245
Winter, regimen, baby's, 82, 94, 108
  children, 122, 127, 129, 131–3, 177
Wood, Thomas D., 126, 152
Woolen garments, 82, 90, 93, 129–30, 148, 347
Workmanship, 251, 254, 259, 261–2, 289, 317, 321, 330, 333–4
Worms, 147–8, 233, 349, 363
Wounds, 337–8, 342, 349–50
Writing, 53
  age for teaching, 141, 207–8, 260, 263
  hygiene, 140, 152, 260
Youth, stage of development, 51, 60, 61
  education in, 198, 263

LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on
or before the date last stamped below.

OCT 20

SEP [illegible] 1921

FEB 15 1922

JUL 6 1922

OCT 30 23

JUN 25 1929

FEB 17 '30

FEB -4 1931

P61 Read, M.L. 46414
R28 The mothercraft manual
1918

NAME	DATE DUE
L. M. Woods	OCT 20 1919 DEC 5 1919
K.B. Ross	FEB 6 1920 FEB 2 1920
Dr. S. H. Hurwitz	DEC 15 1920 JAN 4 1921
	JAN 18 1921
R J Barney	SEP 13 1921
Lee	FEB 15 1922 JUN 6 1922
R J Barney	JUL 6 1922 JUL 11 1922
	OCT 30 '31
A B Stockston	
Dr. Jindell	JUN 25 192
Mrs. A.C.W.	FEB
Dr. Faber	
R. Schoenule	MA

LANE MEDICAL LIBRARY STANFORD
P61 .R28 1918 STOR
The mothercraft manual.
24503358318